
PSYCHOLOGY

FOR GENERAL

EDUCATION

BROUDY

&

FREEL

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*From a wood engraving by Lynd Ward
in his book, WILD PILGRIMAGE*



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7/30

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PSYCHOLOGY FOR GENERAL EDUCATION

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Preface

WE HAVE TRIED to write this book as a means of helping the beginning student in psychology to understand why human beings behave as they do. We tried to keep this theme before us constantly so that the volume would be a continuous development of one theme rather than a series of unrelated chapters on discrete segments of behavior.

We feel strongly that psychology belongs to general education, as part of what every educated person should study and master. In keeping with this conviction we have tried to eliminate detailed discussion of topics adequately dealt with in other segments of general education. We have left genetics to biology, statistics to mathematics, the anatomy of the nervous system to physiology. Nor have we attempted detailed treatment of topics that bulk large in educational psychology and child development courses.

More than customary space, on the other hand, has been given to the historical roots of the major themes of modern psychology, an aspect of the subject that the student who takes only one course in psychology is likely to miss altogether. We have also tried not to stint on the space devoted to personality structure and dynamics. In one sense personality is the chief theme of the book.

Our approach to the problem of human behavior is frankly a perceptual one; we think that this is the meeting ground of current psychology, especially in the area of personality. Certain aspects of personality theory, psychoanalytic thought, and Gestalt psychology seem to be drawing together in their basic concepts. We have also drawn heavily on the work of the social psychologists. In the main, we have tried to keep before us and the reader the idea of the human being as an organic unity, motivated by needs, values, and purposes as perceived by him in the natural world, the social environment, and in himself.

The projects at the end of each chapter follow no one pattern, although for the most part they refer to important experiments or invite the student

to undertake a little rudimentary research on his own. The projects should be useful for out-of-class group work and for class discussion.

The lists of recommended readings at the ends of the chapters do not pretend to completeness. They are suggestions for outside reading from which the instructor may make a selection or which he may wish to supplant with or supplement by other readings. We have tried to include materials likely to be accessible to college students in general. The selections vary in the levels of abstraction and technical complexity.

We are indebted to our many students for the teaching experience that guided the writing of this book. We also wish to acknowledge the suggestions, criticism, and encouragement so freely accorded to us by Professors Michael J. Conlon and Cornelius S. Donoghue, of the Psychology Committee of the Massachusetts State Teachers College Study of General Education, and by Dr. John F. Bowler, its director.

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Part I

THE DEVELOPMENT OF PSYCHOLOGY

In the first four chapters there is an attempt to acquaint the student with the background of modern psychology.

Chapter 1 discusses the nature of psychology as a science and as a subject of college study for those who are seeking a general education.

Chapter 2 sets forth the questions and predicaments that stimulated the early thinkers to formulate the great themes of psychology.

Chapter 3 traces these themes through the beginnings of modern psychology.

Chapter 4 recounts and tries to explain the emergence of the diverse approaches to the great themes of psychology in our own times.

Psychology in General Education

PSYCHOLOGY AS A FIELD OF STUDY

What is general education?
What makes psychology unique?
How is psychology related to other disciplines?

OBJECTIVES OF PSYCHOLOGY

What are the proper outcomes of psychology study?
When do we "understand" psychology?
What has psychology to do with the control of behavior?
Can psychologists control everybody?

HOW TO STUDY PSYCHOLOGY

Are you reading or studying?
What does it mean to "master" a science?
What does real understanding require?
How about devices, tricks, and "gimmicks"?

PRACTICALLY everybody is interested in psychology. Books on psychology sell widely; courses in psychology are popular. This is not surprising, because there is a notion abroad that somehow psychology holds the secret to human success and happiness. It is perhaps a measure of human unsureness that any promise of understanding life better and coping with it more happily is so eagerly sought.

PSYCHOLOGY AS A FIELD OF STUDY

Obviously, if psychology books and courses did really possess such marvelous secrets, and if they yielded them up without too much trouble,

only the lazy and mentally deficient would by now be without their blessings. Apparently matters are not so simple. When the buyers of the books and the students in the courses get over the first bright flush of excitement they realize that there is no glamorous, deliciously secret formula wherewith to transform drabness into splendor or misery into happiness.

On the contrary, there are pages after pages of tables and graphs, and long accounts of the doings of rats in mazes, or of otherwise normal adults throwing balls at targets, of people learning to write with their left hands or trying to memorize nonsense syllables. The terminology becomes strange and difficult, the paragraphs long and tiring.

It turns out that psychology is just another school subject, another field of human knowledge, with its own special language, its own methods of investigation, and its own specialists. To understand it requires a lot of patient and unglamorous study, and even when it is understood it does not automatically make life any happier or more successful. "Why, then," a student may ask, "should I study psychology?"

What is general education?

Once we realize that psychology is a well-defined, systematic subject of study we may ask where it fits into the pattern of general education. For that matter, we may ask, "What is general education?"

Because this is not a book about education, general or otherwise, the answer to this question cannot be full or precise. There is, however, considerable agreement that general education should do two sorts of things for those who undergo it. In the first place, the person who has a good general education is adept at the arts of learning, that is, he or she is rather expert in acquiring, using, and enjoying knowledge. In the second place, such a person has managed to accumulate a respectable stock of the kinds of knowledge that all men at all times, and presumably under all circumstances, will find valuable in the conduct of their lives.

This knowledge we may classify into three broad areas: knowledge about the physical world, knowledge about the social order, and knowledge about ourselves. The various school subjects that fall into these three areas when felicitously combined help us to live in the world, with others and with ourselves.

Granted that it is desirable for everyone to understand man, do we need psychology to do so? Suppose we are told that man is a biological mechanism, that he is made up of cells that are nourished and reproduced in

certain ways that the biologist and physiologist can tell us all about. It makes sense, therefore, to study biology. Similarly does it make sense to study economics because man is a breadwinning animal and to study sociology because man is a companion-loving creature. What sort of creature is man that makes it sensible for us to study psychology?

What makes psychology unique?

We need to study psychology because man is a *transforming* animal. He transforms physical energies and biological movements into emotion, imagination, and thought. His hand, for example, is a biological structure, but he transforms it into a physical tool on one occasion and into a symbol of friendship on another.

All living things strive without benefit of instruction to keep themselves fed, comfortable, and immortal (through their progeny), but only man *transforms* these tissue needs (which, for all we know, may turn out to be caused by chemical and electrical disturbances within our tissues) into *purposes*. Man alone transforms his brute feelings into the sublimities and absurdities that find their expressions in art. He transforms the demands of his fellows into laws, his own restlessness and curiosity into a quest for knowledge. Put somewhat differently, man becomes human by transformations that fall somewhat outside of physics, sociology, biology, and the other sciences and disciplines listed in college catalogues. And these transformations are precisely what psychology is about.

Take, for example, the aspect of behavior called romance. To the physiologist love is a matter of hormone secretions; to the economist it is a factor in the level of business activity; to the sociologist it is an element in the forming and transforming of social classes. Yet when all these interesting kinds of information are catalogued, are we any nearer to understanding that peculiar kind of experience we call romantic love? How do hormones get to be romantic?

How do light and sound waves beating upon our eyes and ears and transmitted by nerve fibers to the brain come to *mean* a blue sky or a Brahms concerto? Why does the belle of the ball or the lion at a social gathering make some of us feel threatened, anxious, or angry? Do our hopes and sorrows color what we see and hear and think? And, if so, how? How do we build up, augment, and develop the meager experience of infancy into the elaborate web of adult human life?

And this matter of infantile experience—is it as meager as we some-

times think? How does it come to have such influence on our later lives? Especially for the happiness or misery of those later lives?

How is psychology related to other disciplines?

Who is to study soberly and systematically the kind of human behavior and the patterns of personality that make for happiness and for misery? What discipline is to discover which kind of life leads to mental health and which to mental disorder? Which group behaviors lead to a peaceful and prosperous society, and which lead to the life that Hobbes characterized as "solitary, poor, nasty, brutish, and short"?

Psychology and literature. Do not literature and history, philosophy and religion concern themselves with these questions? Certainly these disciplines are concerned with the behavior of men as men and not merely as bodies in motion or cells in growth. Nevertheless, none of these does precisely what psychology tries to do.

Literature portrays the fortunes and misfortunes of *individual* men and women. *This* particular hero rescued *this* particular heroine from *this* particular watery grave. Because the hero and heroine are fictitious, they may stand for (symbolize) whole classes of people. Thus, Silas Marner can stand for a whole class of misers and Hamlet for a whole class of unhappy sons. Consequently, we can learn from literature, for example, that villains end up in wretchedness and that misers cannot take their gold with them. These lessons may be valuable if the author has been an accurate observer, but valuable as the insights of a Shakespeare or a Dostoevski for understanding men and women can be, scientific psychology was not their primary concern. The fiction writer does not study human behavior systematically nor does he verify his observations in such a way that other students can repeat his studies for themselves.

The literary artist gives us a kind of "understanding" of his characters by enabling us to enter into their lives vicariously or imaginatively. The scientific psychologist, on the other hand, tries to further our understanding of human life by discovering that, given certain standard conditions, certain actions, thoughts, and feelings will occur in a carefully selected set of subjects. Which is better? This is hard to say. The insights of the literary artist are often profound and brilliant; the researches of the psychologist are more steady and reliable.

Psychology and history. The historian records the important doings of

men and nations, that is, those which made a considerable difference in subsequent events. If he is a good historian, he will be painfully scrupulous about the accuracy of his statements, and other students of history can undertake to verify them if they choose to disbelieve him. Like the literary man, the historian is interested in particular men and events, albeit real rather than fictional ones. He may arrive at conclusions about explorers in general from his intensive studies of Columbus or Magellan and about revolutions in general from his study of the American and French revolutions. Yet it is the behavior of men as it affects the stream of events that interests the historian and not the behavior itself.

Psychology as a science seeks *general laws*, that is, descriptions to fit all men or certain classes of men under certain circumstances. While, for Shakespeare, Julius Caesar's life and particularly his death were material for a drama, and while, for the historian, he was an important Roman ruler and soldier, to the psychologist he affords a fine case study for the play of conflicting motives. Together with other case studies it may reveal something important about the behavior of all men.

Psychology and physiology. Perhaps enough has been said to show that psychology is a discipline with a special job to do. Nevertheless when we study psychology we do run into some biology, mathematics, anthropology, sociology, and physiology.

For example, if we ask how a person comes to get the feelings and sensations we call hunger we have to ask some questions about the chemistry of the blood (1). Some aspects of personality have to do with glands, and whether or not certain human behaviors are inherited can often be settled by what anthropologists tell us about primitive peoples. For instance, if we are tempted to assert that wars cannot be prevented because man is by nature pugnacious, then we are reminded that the Eskimos do not fight aggressive wars to vent their pugnaciousness. The Melanesians, instead of trying to get as much as possible for themselves, are prompted to share what they have with others (2).

As to mathematics, one finds in psychology textbooks a plenitude of graphs, charts, and tables. This means that statistical methods are used quite freely and frequently to classify and describe the data and the results of psychological study. For example, Professor Rhine's well-known experiments on extra-sensory perception (E.S.P.) are based on the frequency with which subjects can name the figures on cards without actually seeing the figures. A subject is judged to be especially sensitive if he names

the right figures more frequently than would be expected by chance or by just "guessing."

Psychology works closely with physiology. Indeed, this partnership is itself one of the great themes of psychology. We know definitely that what happens in our hearts, livers, and brains makes a difference in how we think, feel, and act. We also know that the body somehow takes heed of our joys and sorrows. So much so that psychosomatic (mind-body) medicine is becoming a household word to physician and layman alike.

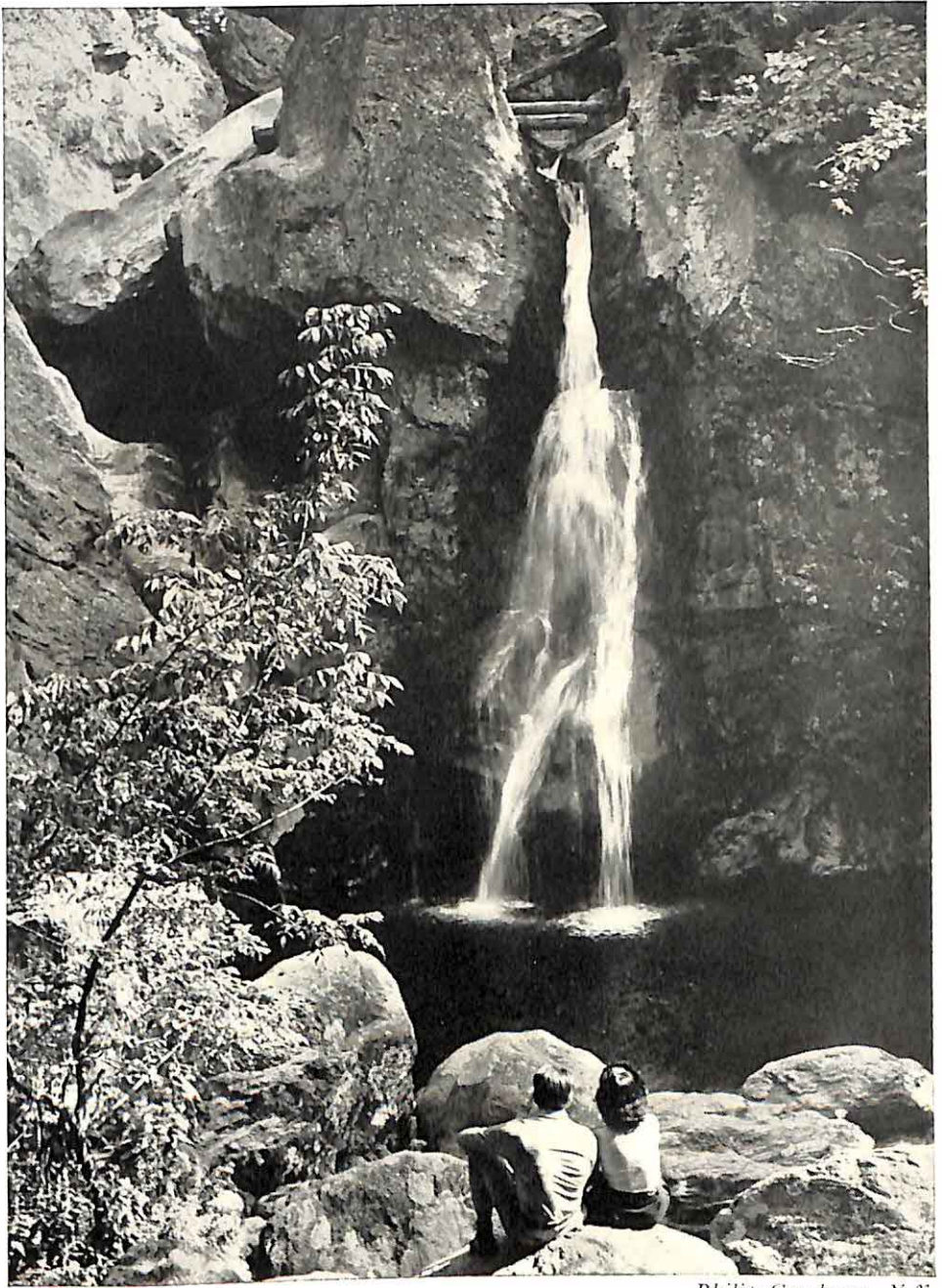
It is natural, therefore, to ask about every kind of human behavior the physiological question: "What goes on in the body during this behavior?" What, for example, goes on in the brain when we hear an opera by Mozart or Verdi? Or what happens when our best friend says, "I'm afraid we have reached the parting of the ways"?

Suppose the physiologist could tell us in great detail just what does happen in the brain or the liver as we listen to an opera, what difference would it make to the person hearing the opera or to us who would like to know what the person who is hearing the opera feels like?

But suppose, on the other hand, that the physiologist tells us that emotional strain may produce or aggravate peptic ulcers. Such information would make a big difference, not only to the physician with an ulcerous patient but also to the psychologist, because the ulcer can produce unhappy personalities just as unhappy personalities can produce ulcers (3).

Psychology, therefore, has relations to many other disciplines, even though it has a job of its own to do. If psychology were the only subject of study, it would have to include within itself a great deal of what we now call literature, history, mathematics, and physiology. But psychology is only a part of general education. Accordingly, in the chapters to come, no more mathematics, biology, anthropology, and physiology is included than is needed to explain the topic or problem under discussion. You will not find a chapter on statistics, nor on the structure of the brain and the nervous system, nor on the mechanics of heredity. This does not mean that these subjects are unimportant either in life or in psychology. They are being omitted simply because they will be studied in other areas of general education.

Psychology and norms. Psychology as a science does not tell us *directly* what we *ought* to do or how we *ought* to behave. It gives us a dispassionate account of behavior, and when it minds its own business it neither praises nor blames the behavior it describes. *Indirectly*, however, psy-



Philip Gendreau, N.Y.

ILLUSTRATION I

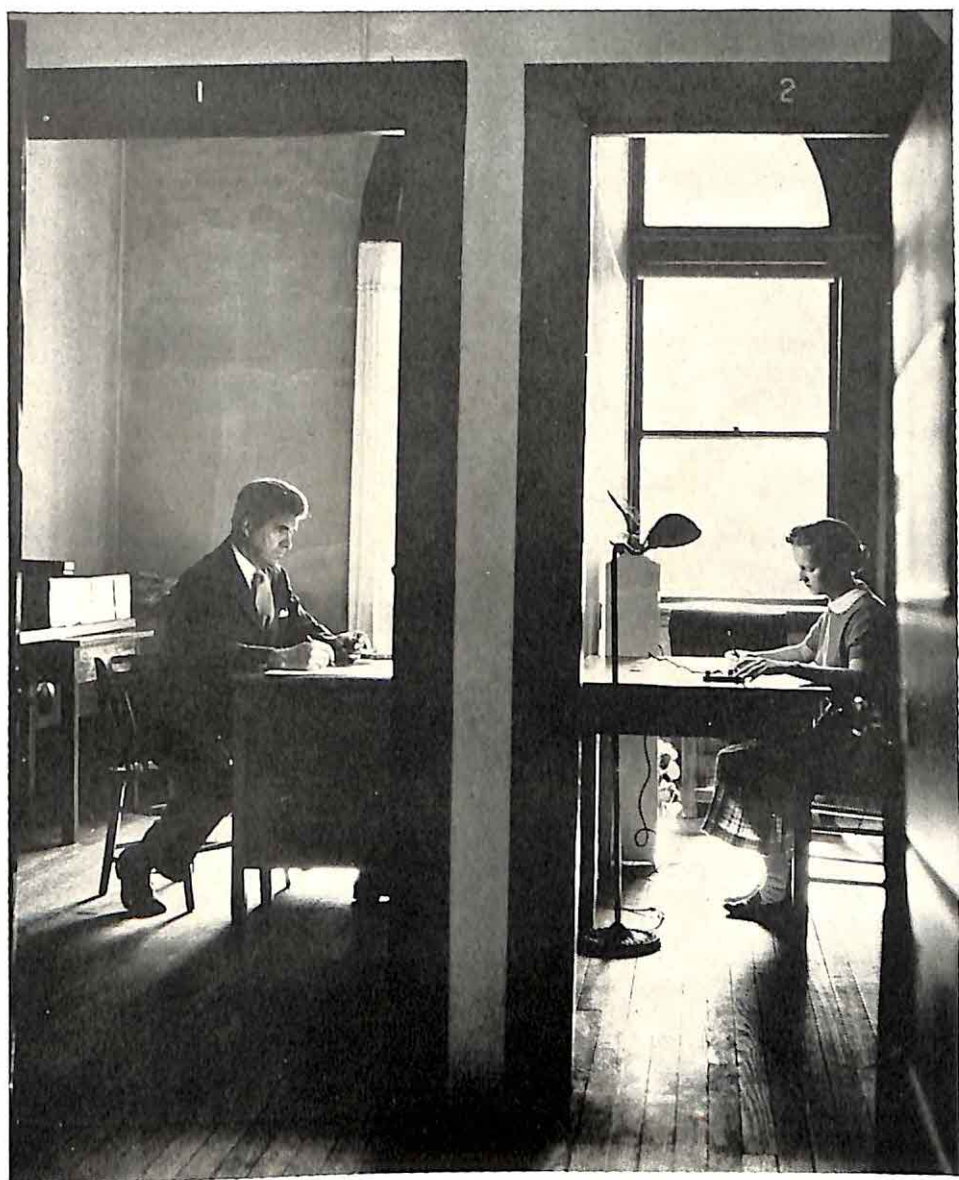
The idyllic scene above, while essentially romantic, involves many physiological, economic, and social factors. Name some. Then turn the page.



Courtesy LIFE Magazine
© TIME, Inc.

ILLUSTRATION 2

Little girls on billboards draw sure-fire attention from the public. What kind of attention are these girls drawing from their father? How long can the father control their behavior? His own?



Courtesy LIFE Magazine
© TIME, Inc.

ILLUSTRATION 3

Is there an immaterial mind or soul? In this picture Professor J. B. Rhine is seen turning cards in one room as a girl in another room records her guesses on their order. It is argued that if the girl guesses better than could be expected from chance guessing, it is evidence for extra-sensory perception (ESP).

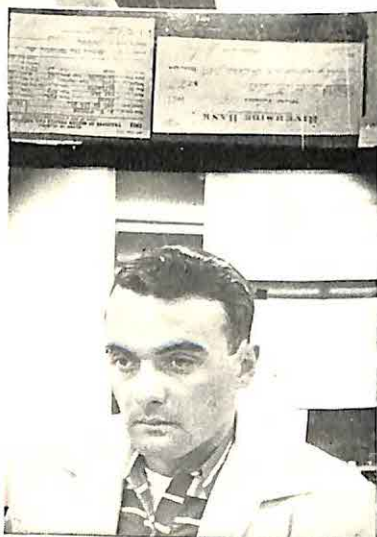
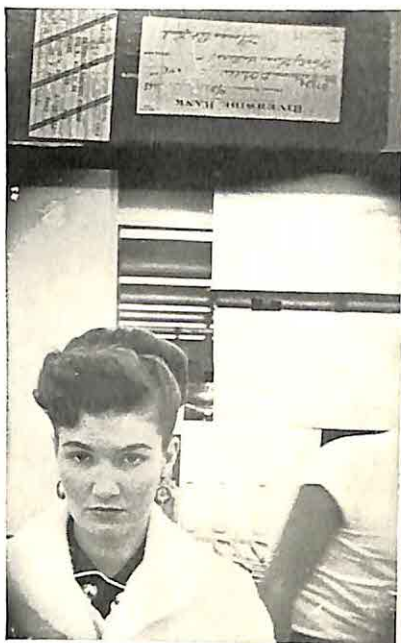


ILLUSTRATION 4

These three pictures were taken while their subjects were cashing checks at a supermarket. Can you read their characters from these people's faces? Do you see any similarity between the two girls?* On the basis of these pictures can you guess which checks "bounced"?***

*They are the same girl.

**All the checks bounced.

Pictures courtesy Dubl-Chek Corporation.

chology does tell us what we *ought* to do. Suppose psychology discovers that emotional upsets contribute to the aggravation of peptic ulcers. If we wish to avoid ulcers, then we *ought* to avoid emotional upsets. If psychology can arrive at reliable descriptions of behavior patterns that make for happy marriages, efficient schools, or peaceful neighbors, do not these descriptions automatically become *prescriptions*—if we want happiness, efficiency, and peace?

However, psychology is not the only discipline and certainly not the only source of norms (standards). Philosophy, ethics, religion, public opinion, private opinion, commentators, columnists, friends, neighbors, and organizations of every sort are more than generous with advice on how life should be lived. Whether these views are true or false, psychology by itself can never decide, for, primarily and directly, it is concerned with the kind of experience human beings actually do have, and only indirectly with the kind of experience they *ought* to have.

OBJECTIVES OF PSYCHOLOGY

What are the proper outcomes of psychology study?

Every subject is studied with the hope that it will somehow repay the effort. At the beginning of the chapter we discouraged the naïve souls who expected to find a magical formula for lifetime success in psychology classes. Nevertheless, it is only the professional scholar who studies psychology for no reason other than to understand it. Most of our college students are not professional scholars—in this respect at least. If they are seeking a general education, they certainly have a right to expect some practical help from psychology in the improvement of their college grades and in the quality of their lives.

Understanding the principles of human behavior and using them to control our own behavior and the behavior of others are the two general outcomes that every student can properly expect from a faithful study of psychology. Let us now see what each of these outcomes means.

When do we “understand” psychology?

By understanding psychology we mean that we can state the causes for a particular piece of behavior or for a certain kind of behavior. For example, suppose we wonder why Mr. X married Miss Y. Some psychol-

ogists might explain that Miss Y bore a strong resemblance to Mr. X's aunt. This aunt, in turn, may have been a lifelong rival and enemy of Mr. X's mother. If Mr. X hated his mother, then we can *understand* why he married Miss Y. In other words, we understand human behavior when we can make it plausible, that is to say, when we can show how it emerges from events that preceded it and merges into events that follow it.

Understandings of this sort depend on our knowing certain generalizations, that is, certain statements or propositions having the form: All A is B, or a certain percentage of all samples of A will be B. Thus "All red-heads have quick tempers" has the *form* of a generalization, but whether it is a true generalization is another matter. "Water freezes at 32° Fahrenheit under certain conditions" is another generalization, and "Such and such a percentage of American males will live to a certain age" is still another.

Psychology tries to supply generalizations about human behavior and to the extent that it does so it helps us to understand particular instances of human behavior. At this point we come upon one of the real advantages of psychology over some other subjects. Each student, in a real sense, carries his own psychological laboratory with him. We can experiment with ourselves. We can try to understand our own behavior as well as the behavior of others. At first blush this sounds a bit odd, for, after all, do we not *know* why we ourselves behave as we do? The behavior of others does at times seem incomprehensible to us, but surely our own ought to be transparent, at least to ourselves. Of course, this is not the case, and the psychiatrists would be out of business if it were. Much of what we do today seems to have its roots and origins in events that we have long forgotten. Thus our definite dislike of this food or that person is often as inexplicable to us as are the antics of others.

What has psychology to do with the control of behavior?

To understand behavior is perhaps enough for the scholar. For nearly everyone else it is not. Most of us want to understand in order to do something. We may want to *change* our own behavior or that of somebody else. The adolescent girl who is not the belle of the ball wants to improve her popularity and may turn to psychology only if she thinks that it will help her in this enterprise. The manufacturer would like the help of the psychologist to dispose people favorably toward his product and

the politician would like to wage psychological warfare on the party that opposes his re-election.

We may call this effort to change behavior the desire for control of behavior. Control, of course, is a synonym for power, and the feeling of power is a heady and satisfying feeling.

Control and understanding. Control depends on understanding, and this, in turn, depends on generalization. Once we know what causes human behavior, we may be on the way to predicting and controlling that behavior. If we know that babies, pretty girls, and dogs attract the greatest attention to billboards, we can control the attention of millions, provided we have the means to rent billboards and to have the appropriate materials pasted upon them.

In this age, as everyone by now should know, there is a constant war for the minds of men, which means that there is a war for the control of men's behavior. During World War II great strides were made in perfecting the techniques of mass propaganda and psychological warfare. Even in peacetime no self-respecting factory, hospital, or school system would regard itself as complete without a public relations staff.

Control and mass media. This is hardly surprising when so many of our enterprises depend for their very life on support from widely scattered areas and people. A state university wants a fat budget. This requires the consent of perhaps several scores of representatives in the legislature. The university needs their good will. How to get it? There are crude ways, for example, by making a fuss over them at big football games, flattering them, or just asking them to please be sure to vote for the budget. There are many other ways, some illegal, some doubtfully ethical. But, by and large, university officials honestly feel that if the public knew what was being accomplished at the university, its representatives would see the need for the budget, and that it was not "fat" but simply "healthy." The psychologists have already made it clear that, if people are encouraged to *identify* themselves with an institution, they are the more likely to act in its favor. Hence, the most successful kind of public relations for a university or a firm or a product is the kind that enables large numbers of people to identify their destinies or their fortunes with it.

The fact that we are now able to stimulate huge audiences via the newspaper, the magazine, the radio, the movies, and television makes it more important than ever for those who try to control public opinion to know the psychological principles for doing so.

Freedom from control. On the other hand, each individual who hopes to act as an intelligent person needs to know more and more psychology to *withstand* the demands that these mass media with their mass pressures exert upon him. It gets more and more difficult to make up our own minds as others try harder and harder to make them up for us. Perhaps psychology can do nothing more important for the citizen than to make him aware and wary of the devices that can be used to sway his emotions and judgments in matters of public policy and private action.

Control and mental health. Every one of our social institutions works good or ill as its members adopt certain *attitudes* toward each other. Marriages are not successful if there is not a psychological mating as well as a physical and economic union. Today we are all deeply preoccupied with providing the kind of psychological atmosphere in the home and in the school that will lay the foundation of mental health in the child. This means control.

The government, the church, the club, the workroom—each depends for its success on the attitudes of its members. How to shape these attitudes is one of the major problems of social psychology. There are those who would go so far as to say that to live successfully in a democracy requires that we develop a certain psychological make-up in our citizens. Could such a procedure be democratic?

So, in whatever direction we turn we find that men are trying to control each other's behavior, and that the key to this control is psychology. This does not mean that psychology has already discovered all the means or even the principles for such control. It does mean that the sort of thing psychology does and the sort of thing we study in psychology are always relevant to the control of behavior.

Can psychologists control everybody?

If psychology is the key to the control of behavior, and if control is power, then the psychologists should be able to control everybody else. Why are they not able to do so? The answer is the same as would have to be given to such similar questions as: Why do not stock market experts make fantastic fortunes? Why do not track tipsters win consistently at the races? Why are physicians and their families ever ill?

Understanding something, knowing what to do about something, and actually doing it or getting it done are quite different matters. There are

some things that we can understand but about which we can do nothing, for example, some aspects of the weather and the movements of the planets. In other instances, forces and factors operate to produce a certain kind of behavior, and our knowledge is relatively powerless to do anything important about them. For example, a great many men would like to stop smoking. They may have become convinced in one way or another that this habit is injurious to health and they may even understand why this might be so. They do not, however, on that account immediately stop smoking. Some stop only after great effort; others stop and resume many times; others cannot stop at all. Presumably other factors than their conscious wishes and their knowledge are operating here, and these are strong enough to thwart control by understanding.

Obstacles to control. This brings us to one of the most mysterious and most persistent of all psychological problems: why can we not carry out our wishes when no one on the outside is preventing us from doing so? Because, as we shall have occasion to note many times in the coming chapters, some of our behavior tendencies and patterns were formed in us *without* our understanding and often without our awareness. Our viscera—our vital organs—have much to do with our emotions, and they often go their accustomed ways without too much regard for what our conscious minds are saying. An unpleasant episode that occurred to Mr. X in a particular town can make him feel uncomfortable in that town twenty-five years later, even though he has had no further unpleasant or pleasant experiences in that town during the interval. Our viscera have long memories.

There are factors within us over which our control is imperfect even when our knowledge is adequate, and, of course, our knowledge is rarely adequate. But there are also factors outside of us that prevent our control of other people's behavior even when we understand the principles of such control. In the first place, people do not like to be controlled. They resist, and the more they know they are being controlled the more they resist. In the second place, people have goals and purposes of their own, and when these do not coincide with those of the controller or would-be controller there is conflict. In the third place, general principles or generalizations (when we are fortunate enough to have them) do not automatically tell us what to do with a *particular* balky child or a *particular* balky juvenile delinquent. We may suspect, for example, that this child may be balky because it is often the case that children with unstable and

futile mothers are balky, but there may be little we can do to change the behavior of this particular mother. Also, we might know that certain types of delinquency are symbolic desires for revenge on society, we might even know that our own problem boy is an example of this kind of delinquency; nevertheless, we might still encounter the greatest difficulty in deciding what would help this boy and of finding the means for doing what we decided to do.

For all these reasons and for others that might be listed, control and understanding do not walk hand in hand. Yet because without understanding control is accidental and haphazard, general education has to build up understanding as a basis for intelligent control.

HOW TO STUDY PSYCHOLOGY

College students, however interested they may be in psychology, do on occasion fail courses in it. This is distressing to everybody concerned, especially when the student is fairly conscientious and not markedly unintelligent.

It so happens that psychology is likely to be one of the courses that the student encounters for the first time in college. History, literature, and mathematics he has already met in high school but not, as a rule, psychology. Because it is a special discipline, it has its own materials and its own methods of investigation.¹ To master this subject requires certain skills, habits, and perhaps ways of thinking that need to be developed in the beginning student. The following remarks will try to make a little clearer what is involved in studying psychology. The student who has no fears and no difficulties may omit these remarks with profit; those who have their doubts may profit from reading them.

Are you reading or studying?

For the most part, students learn psychology by reading a textbook. The psychology instructor, if he has been teaching long, is familiar with the story of one type of failing student. It runs something like this: "Sir, I read the assignment three times and I was sure that I understood it.

¹ Just what the method of investigation *ought* to be in psychology is itself one of the chief points of controversy, and this controversy will appear in many of the later chapters.

But when I got to the examination, I just couldn't seem to answer your questions."

Sometimes this is supposed to mean that the instructor asked the wrong questions or that he deliberately made them tricky so that the student would be befuddled and fail. But, since most students in a given class pass a given test, and not a few do so with ease, it does not seem likely that the fault lies with the questions. The other explanation that suggests itself is that this particular student is woefully stupid, and that psychology is just beyond his mental capacity. If this is the case, the student should not be struggling in college or certainly not in a course in psychology. It is quite unlikely that the student is deliberately lying when he says that he understood what he read three times. He could, however, have been mistaken.

Perhaps the first clue to the difficulty of this student is that he read the assignment three times. If he understood the material the first time, why read it twice more? Presumably, because after the first reading the student tried to check how much of the material he could remember. When, to his dismay, he found that he could not recall very much he went over it again and again in the hope that something more would stick with each repetition. The sad part of the story is that not much did stick and what did was not what the instructor had in mind when he made up the questions.

Let us repeat that psychology, as it is treated in this book and in many others, is a science, and like any other science it has a certain structure that ties together certain materials in logical fashion.

What does it mean to master a science?

In any science we shall find the following kinds of materials or items:

1. *Data or facts to be explained.* For example, in psychology it is a *fact* that people see the world in three dimensions. It is also a *fact* that the retina of the eye has only two dimensions (that is, the surface on which the image falls). How, then, do we see the third dimension?

It is a *fact* that some neurotic personalities are marked by undue attachment to the mother; it is also a *fact* that other neurotic personalities are marked by a deep hatred for the mother. How shall we explain this? It is a *fact* that if we learn a series of nonsense syllables at 3:00 P.M., we shall forget more in the hour between 3:00 and 4:00 P.M. than in the subse-

quent two hours. Why? It is a *fact* that, if we go to sleep after studying French irregular verbs, we shall remember more of them than if we stay awake and read Latin poetry in the interval. Why? (Cf. Chap. 10)

Facts form the fabric of a science. For example, there have been careful studies of reaction time. The results are facts of the following kinds:

a. Reaction time—the time it takes for a subject to respond to a stimulus—depends on the sense organ. Thus we respond more quickly to a touch than to a flash of light, and it takes twice as long to react to pain as it does to an odor (4).

b. Reaction time varies with the strength of the stimulus, the nature of the period just before the stimulus is applied (5), and becomes quicker with practice and slower with age (6).

c. Low oxygen pressure increases reaction time (7). Fever and some drugs shorten it (8, 9).

Sometimes these *facts* call for explanation, that is, the difference in speed of reaction may call for such an explanation, but often they simply add up to what we know *about* certain kinds of human behavior. A good deal of the knowledge we have about the nervous system is of this sort.

How important is it to memorize facts? In one sense, very important, because without precise knowledge of fact our acquaintance with psychology will remain fuzzy. In every science there are dedicated research workers digging up facts in the hope that some day they will be significant. For the student it is important to make a selection because obviously he is not going to remember all the facts. The instructor in the course is the final arbiter in this selection. The student may disagree with him as to which facts are important and how many ought to be memorized, but an examination or a quiz is no time for a student to take issue with the instructor on matters of this kind.

In general education this selection may be quite different from that made for the student who expects to be a professional psychologist, an expert in psychology, or to take a "major" in psychology. It is the difference between the specialist and the educated layman. To the specialist, every fact in a narrow area is important. For example, the specialist in the study of reaction time (see above) has to take account of every experiment that has been written up in the journals, monographs, and books. That, one would suppose, is what makes him a specialist. The same would be true for the specialist in chemistry, mathematics, or sea monsters.

But for the student who is studying psychology as part of general edu-

cation, not all the facts about reaction time are essential. He does not need to remember all the experiments or all the details about each of them. General education may be adequately served if the student is aware of a few *key* experiments that illustrate for him (a) how reaction time is studied in the laboratory, (b) the relative speed of reaction to various kinds of stimuli, (c) how reaction time may be increased and decreased, (d) the application of reaction time findings in such fields as traffic safety, industrial safety, or aircraft control.

Let us suppose, therefore, that we have reduced to a minimum the number of facts to be studied for recall. It still remains true that, if they are learned as illustrating or proving a principle, they will be learned more quickly and retained longer than if the student simply reads them over once, twice, or even three times. If the student tries to answer the question, Which of these facts are important and what makes them important? he has already made a big start on memorization. Or, to put it in another way: If the student can perceive the facts in a pattern of some sort, he will learn them faster and remember them longer (10). We shall have occasion to ask why this should be so, but this is not the place to answer this question (cf. Chap. 10). We can remark here that this search for significant or important facts is somewhat different from reading the assignment three times. One could read it twenty times and still have the wrong facts stick and the right ones fail to stick.

2. This brings us to the second type of statement found in a logically organized subject matter, namely, *theories*, *generalizations*, and *hypotheses*. Generalizations we have already mentioned, but it is somewhat important to know the difference between generalizations and facts. Suppose we say that there are separate and distinct receptor mechanisms in the skin for the sensing of warmth and cold. Is this a fact? We are likely to say that it is, just as we are likely to agree that "water freezes at 32° Fahrenheit (under certain conditions of altitude)" is a fact. What we really mean by calling these statements facts is that we regard them as true.

Strictly speaking, these are examples of generalizations, for, strictly speaking once more, no one has examined *all* the instances of water turning to ice and no one has examined every human being, living or destined to live, to make sure that he has separate sets of receptors to feel the heat of a match or the coldness of an ice cube. However, enough of such instances have been examined to make us feel that finding fresh water

that froze at a temperature other than 32° Fahrenheit or finding a human being without cold and warmth receptors would surprise us and the experts no end.

Generalizations, therefore, are inferences from specific cases or instances, that is, from this pail of water freezing at 32° Fahrenheit, this other pail of water freezing at 32° Fahrenheit, the third pail of water freezing at 32° Fahrenheit. Presumably the scientists saw no need of further experimentation after examining the freezing of water under as many different sets of relevant circumstances as they could think of. Nevertheless, in making the generalization they are going "beyond" the facts, even though the evidence that it is safe for them to do so is very strong.

We can see how a generalization that has refused to flinch before the scrutiny of the experts comes to be regarded as a "fact," as something to be taken as *given* and not as something to be *proved*.

It also happens and in somewhat the same way that certain theories or hypotheses become facts as their challengers become fewer and less belligerent. Thus the hypotheses of biological evolution, the atomic structure of matter, and the unconscious nature of many of man's motives come to be thought of as facts. It is thoroughly understandable, therefore, that when the student looks at these theories or hypotheses as "facts" he tends to want to *memorize* them. Of course, if the instructor is in the habit of asking examination questions such as What is Freud's theory of the id? it encourages the student to memorize all the more.²

This memorization of hypotheses, theories, and even of generalizations is harmless enough if we remember that the important matter for the student is that he *understand how* these are proved and not simply to *know what* they are.

What does real understanding require?

This sort of understanding demands from the student something rather different from the mere reading of the text. What does it demand?

² We have not in this section distinguished between theory and hypothesis. There are those who regard a theory as a well-established hypothesis, that is, the *theory* of evolution as contrasted to the nebular *hypothesis*. Others reserve the term "theory" for rather extensive systems of thought as opposed to the narrower range of hypotheses. For example, the whole system of argument by which we might hold that juvenile delinquency is caused by the emotional instability of the parents would contain the hypothesis that in the case of Joseph X *this* was the cause of his delinquency.

1. It demands, in the first place, a thinking *with* the author, that is, asking the questions he asks and trying out the answers he puts forward. Specifically at this stage the student can ask himself: (a) What is the hypothesis this section of the book is talking about? (b) For what facts does it try to account or what problem is it trying to solve? (c) How well does it solve the difficulty?

Every hypothesis is framed by some thinker because he thinks it will solve some difficulty. It is doubtful, therefore, that the student is "understanding" the topic if he is not aware of what the difficulty is or even that there is a difficulty. This is rather pathetic because, while the author and the instructor are getting quite excited about a difficulty and a solution, the student is wondering what there is to get excited about. The first test of the good student in any field is whether he knows what the problems in the field are, that is, what the fighting is all about.

2. After the student can state the problem or difficulty, he needs to read the text for the way in which experiments or the descriptions of other facts are used to prove or disprove the hypothesis or theory. And at every step the important question is whether or not the reader can "see" or feel that the hypothesis does or does not explain what it purports to explain. For example, the hypothesis that maturation is more important than practice in climbing ladders was confirmed by Hilgard (11) in an experiment that had one group of 24-36-month children being taught to climb 2½-foot ladders while the other group was kept away from ladders. For twelve weeks one group practiced; the other did not. Then in one week of practice the nonpractice group caught up with its rivals.

Now, the point of the whole experiment is whether the results proved that maturation was a primary factor. The fact that at a different period of development practice produced different results seems to prove this, for if it were practice alone, then it would make no difference at what stage of development it was applied.

3. Finally, the student looks in the text for the author's comments about the adequacy of the hypothesis. Quite often the author will carry on an extensive argument to show that the hypothesis is good, bad, or indifferent. How much of this is to be found in a textbook depends on the level of study for which it is written. The first-rate student supplements this evaluation in his text with other readings plus his own wonderings about how well it explains what it promises to explain. Naturally, beginning students are not expected to be profound in their criticism or

evaluation, and even much more advanced students find it difficult to be original in these matters. Nevertheless, the more of this sort of evaluation the student tries to carry on the more surely we can say that he understands what he is doing and reading.

To sum up this part of the discussion: To study psychology properly means that under each topic heading the student will be able to state and describe the significant data, the major problems, and areas of controversy. He will then be able to show how certain hypotheses or theories purport to solve these problems and by what experimental or other evidence these theories are supported. Finally, he will have some notion as to how adequate or inadequate these theories are held to be by the experts in the field.

By this time the student ought to be convinced that the study of psychology, or indeed of any logically organized subject matter, is not to be confused with the reading of the materials once, twice, or even seven times.

The conduct of the psychology course—lectures, discussions, illustrations, outside readings, the writing of papers—is designed to hasten and deepen the kind of understanding described above. If the student goes into his class or into his textbook with the right questions, then he will get the maximum return from his study time and, incidentally, the classes will be much less dull than they so often are for the poor student. Once the student takes this problem-solving attitude toward psychology, he will have no difficulty in asking intelligent questions, taking part in class discussion, making sense out of the text and the tests.

How about devices, tricks, and "gimmicks"?

The student may feel himself cheated after the last few pages. He may have expected a detailed set of instructions on how to take notes in his classes, a little packet of tricks wherewith to fix things in his memory so that they will pop out happily during examinations and in brilliant conversation, or a method to make the study of psychology relatively painless.

The methods of study used by good and poor students have been investigated (12), and it is pretty well agreed that there is no one method or one device that works equally well for all grades of mentality and all types of personality. Students rarely fail because they lack devices; they

fail because they misunderstand the nature of what they are expected to do or because they lack the background or skill to do what is expected of them.

Because different instructors have their own notions about what is important for their students to learn, it is risky to predict what they will say on this matter, but it is perfectly legitimate for the student to make sure on each assignment that he knows what the instructor thinks is important and *why*.

If you can read ahead of the class lecture or recitation, then the class period itself becomes an extra study period. During that hour you compare what you thought was important with what the instructor seems to think is valuable, and if you disagree you have a "thoughtful" question to ask right then and there. A few really thoughtful questions a semester are enough to endear almost any student to almost any instructor's heart. Once you "catch on" to what is important, you have the key to the examinations in the course.

Nothing takes the place of extensive reading, careful study, and application, but there is some virtue in the right kind of laziness, too. The good student reduces his waste motions to a minimum. He tries to avoid the need for rereading and for rewriting. This means taking good notes the *first* time. Like any efficient workman, he tries to do as little as possible, not as much as possible.

It is exceedingly strange that after twelve or more years of schooling so many of our college students complain that they do not know how to study. Fortunately, there is evidence to show that poor study habits can be improved under guidance, especially if it is individual guidance (13, 14).

Students complain that they cannot concentrate, cannot take useful notes, cannot plan their time, cannot remember what they read, cannot take examinations. A carpenter's apprentice who could not master the trade in twelve years would be regarded as hopeless. Why, then, do the arts of learning remain in a tattered state for so many college students? Is it possible that they were never particularly interested in acquiring them?

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SUMMARY

In this introductory chapter we have been concerned with what psychology should be and do in a scheme of general education. The first questions are: Do we need psychology as a part of general education? Is it a special study with its own distinctive subject matter or does it merely repeat what is taken up in other courses and subjects? We have concluded that, although biology, physics, mathematics—indeed, almost any discipline—can say something relevant about human behavior, none of these is primarily interested *scientifically* in those transformations by which behavior becomes typically *human*.

The how and why of this behavior is the subject matter of psychology. Literature and history, philosophy and religion share this interest in human behavior, but none of these seeks its general laws with modern psychology's devotion to scientific method.

Modern psychology finds it necessary to resort to the findings of many other sciences. It uses them for its own purposes, just as other disciplines use psychology for their purposes.

Does psychology tell us what we *ought* to do or how we *ought* to feel? Only indirectly, as it discovers the connections between certain kinds of behavior and human welfare and happiness.

In general education, psychology can offer the student a chance to understand human behavior more clearly and possibly, in some instances, a better control over his own and others' behavior. This control is a serious matter in these days of mass communication, and psychology can help us both to secure such control and to resist it. Understanding is necessary for intelligent control of behavior, but is no guarantee of it.

The last sections of the chapter were devoted to the discussion of how to study psychology in general education. We were especially concerned to persuade the student that effective mastery of any logically organized subject matter was not achieved by reading the assignment, not even if it was read repeatedly with intent and effort to remember.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: To determine student purposes in psychology study

Procedure: Interview five of your fellow students in the class by asking them and recording their answers to the following questions:

1. Would you have taken this course if it were not required?
2. Other than meeting requirements, have you any goal or purpose in taking this course?
3. If so, will you list these goals in order of their importance?
4. Give me the name of three men who were or are psychologists.

Be ready in class to discuss the results of these interviews. As various members of the class report, can you see any generalizations about student aims in studying psychology emerging? To what extent do these generalizations agree with the text on this topic?

PROJECT II

- A. Before attending your next class in psychology, check the following items:
 1. Have I read through the material in the text on which the instructor is scheduled to lecture or on which discussion is scheduled?
 2. Have I a list of items, points, or topics that I regard as *important* (check in book, in notes, etc.)?
 3. Have I a *list* of items, points, or topics on which I need help (those on which I could not take a quiz or recite)?
 4. Have I discussed this assignment with anyone? Have I tried to explain any part of it to a fellow student who is having difficulty?
- B. Have you made plans to allow sufficient time for the study of this course? How many hours a week do you feel you will need?
- C. Are you all straightened out about the written work for the course, outside reading, special assignments?
- D. Do you know just where in the library the books and periodicals dealing with psychology are to be found?

PROJECT III

Topic: Careers in psychology

Assignment: Read E. L. Hartley, H. G. Birch, and R. E. Hartley, *Outside Readings in Psychology* (New York: Thomas Y. Crowell Co., 1950), Art. 98, p. 814.

Questions for Class Discussion

1. What are the duties of a counselor in college?
2. What are the duties of a clinical psychologist?
3. What would be the educational qualifications of a psychologist at a juvenile correctional institution?

4. What connection can you discern between your own vocational field and psychology?

RECOMMENDED READINGS

The amount of outside reading to be done depends on the inclination of the student and the plans of the instructor. The items listed at the end of each chapter are not "musts," but rather suggestions that may lead to further exploration.

BIRD, CHARLES, and BIRD, DOROTHY M. *Learning More by Effective Study*. New York: Appleton-Century-Crofts, 1945.

CONANT, JAMES B. *On Understanding Science*. New Haven: Yale University Press, 1947, Chaps. 2 and 4.

FREDERICK, R. W., KITCHEN, P. C., and McELWEE, AGNES R. *A Guide to College Study*. New York: Appleton-Century Co., 1947.

HARTLEY, EUGENE L., BIRCH, HERBERT G., and HARTLEY, RUTH E. *Outside Readings in Psychology*. New York: Thomas Y. Crowell Co., 1950, pp. 1-22.

McKOWN, HARRY C. *How to Pass a Written Examination*. New York: McGraw-Hill Book Co., 1943.

SMITH, S. STEPHENSON. *How to Double Your Vocabulary*. New York: Thomas Y. Crowell Co., 1947.

2

Great Themes of Psychology

NATURE AND FUNCTION OF THE SOUL

*Is the soul material or immaterial?
What was Plato's view of the soul?
How did Aristotle's view differ from Plato's?
What directs the development of the organism?
How did Christian thinkers deal with the soul?*

MIND AND BODY

*Why is there a mind-body problem?
How can the absent be present?*

CLASSIFYING AND UNIFYING EXPERIENCE

*What were the early notions about sensation?
How is sensation developed into knowledge?
Where do emotions fit into experience?
What is the basis of striving?*

WHAT IS THE GOOD LIFE?

*What is the just or happy soul?
Can the unconscious affect us?
What is the role of religion in mental health?*

IN NEARLY ALL psychology textbooks there is a chapter on the historical beginnings of the subject. This chapter usually notes that our remote ancestors entertained strange and superstitious notions about spirits and souls and that they were followed by famous men who thought about the problems of human behavior while

ensconced in armchairs and that all this armchair activity was interesting but not important because the old chaps had no idea of scientific method. After this casual salute to the past, the text leaps over to the enlightened days of "scientific" and experimental psychology.

Is the history of psychology important?

It is difficult to understand why this salute is necessary at all, and if necessary, why it is so perfunctory. This is a point of some importance if we study psychology as part of *general education*.

One may become a good technician in psychology, as in chemistry, without knowing very much about its history. One can use oxygen or administer an intelligence test without knowing what Lavoisier said about oxygen or what Plato and Aristotle thought or said about intelligence. Presumably we can *understand* the theories of chemistry and psychology without knowing how or when they were developed. Sometimes, indeed, it is better not to know too much history because knowing too much about the past may spoil the surprises of the present.

But part of general education—an important part—is perspective. We expect the well-educated person not only to know or understand the problems of psychology but also to have some knowledge of how these problems arose, the rise and fall of their fortunes, and their probable destinies.

For more than two thousand years in our Western culture certain psychological themes or problems have engaged high-grade minds in every generation. These themes are still with us. Modern textbooks on psychology treat them differently, but the basic problems, strangely enough, have not changed much. What are these themes?

NATURE AND FUNCTION OF THE SOUL

It may be true, for all we know, that our remotest ancestors were troubled about the soul. It would have been natural enough for them to be puzzled at the elusive but overwhelming difference between a living body and a dead one. A person dying of natural causes left a body that, for a while at least, was in no way different from one in its living state. It could be pushed, pulled, hauled, and lifted, but it could no longer move itself. What, therefore, was the *cause* of this power to move itself? And

what could be more logical than to conclude that, since something was missing in the corpse that could not be detected by the closest examination in the living body, this something was real but unlike anything we can see, hear, touch, taste, or smell? This elusive something was called the soul, and it was used to explain not only life and death but also dreams, apparitions, and perhaps shadows and reflections.

Once this something was conceived and named, it could also be thought of as *directing* the human body as well as *moving* it. It was an executive agent who planned, organized, and carried out the plans of the whole person. To this day we speak of an I who thinks, remembers, imagines, feels, wills, plans, suffers, and occasionally rejoices. The I may be called the self, the ego, and subject, but whatever it is called it means an agent who directs and unifies the experience of a given personality in its journey through life (cf. Chaps. 5 and 13).

Obviously this I, this agent, this ego was the most interesting of entities and worthy of the most intensive scrutiny. This intensive scrutiny of the soul, or *psyche*, was to become the systematic discipline we call psychology.

But how are we to study the soul? We can study the blood, the nervous system, the skeleton, the things man makes and shapes, but what do we study when we study the soul? This brings us to the first great theme in psychology, namely, What is the nature and function of the soul? What is it, what is it like, what does it do?

Is the soul material or immaterial?

Whether the soul was material or not was a fairly old question even by the time of Plato and Aristotle, for we find Aristotle cataloguing various views on the subject (1). Fundamentally there were two views, with variations of each and many combinations of both. The soul was regarded as being either material or immaterial. Either it was made of the stuff that makes up tables, chairs, planets, and other physical things or it was not. Democritus (460–360 B.C.) said the soul was a sort of fire or heat and was composed of fine spherical atoms, so fine that they could not be seen by the naked eye—and in the days of Democritus presumably there were only naked eyes with which to see.¹

Being made of these fine and invisible atoms, the soul could easily

¹ This materialistic account of the soul was also subscribed to by the Stoics.

be imagined flitting out of the body in dreams, apparitions, and in death.²

To some thinkers, however, the notion of a body that one could not see, hear, touch, smell, or taste was and still is nonsense. They argued that the soul was not nothing, but that it was not body either. It is immaterial, that is, without specific size, shape, parts; it does not occupy space; it has no weight.³

However, a material soul that could not be experienced and an immaterial soul that could not be experienced were equally useless to the later psychologists, for what could not be experienced could not be studied and what could not be studied was of no help to psychology as a science. Hence the concept of the soul has tended to disappear from psychology textbooks.

We may put it in this way. Every so often we read about a gang of racketeers who terrify the community. Occasionally members of the mob are caught, and from time to time we hear that there is a "higher-up" who controls the mob. This higher-up is unknown to the police and presumably even to his own underlings. This higher-up is somewhat like the self, or the soul, or the I. We know for a fact that human experience is tied together and directed. It shows every sign of being ordered and organized by something or somebody, yet even the most acute scrutiny does not disclose this higher-up to any one of our senses.

Some psychologists are ready to say, therefore, that there is no higher-up at all. Each member of the mob, when he gets together with other members, helps to make up the schemes of the mob from moment to moment. Similarly, each new bit of experience, as it arrives, fits into the experience already there. It is as if it had little hooks by which it fastened and connected itself to other bits of experience. What these little hooks may be and how they fit together is one of the perennial problems of psychology—especially of that type of psychology called associationism (cf. Chap. 4).

To sum up: If one believes in the existence of some kind of self or soul which is separate and different from the acts that it performs, then one

² Democritus was not too convincing in his explanations as to how the soul made its entrances and exits so neatly, but the important point for us is that he was an early representative of the view that whatever is is material, that all that is is a kind of body. In philosophy such a view is called materialism.

³ Anaxagoras (500-428 B.C.) was perhaps one of the earliest proponents of the idea that the soul was of this nature. This view has many forms and many names and it is at the root of all spiritual and idealistic versions of reality.

has to tell *what* it is and how it manages to do so many different things. If one feels that one can explain human experience without such a self or soul, then one has to show how separate little nuggets of experience get tied up into streams of experience so that Mr. X can call one set of these nuggets "my own experience."

What was Plato's view of the soul?

In the *Republic*, Plato speaks of the soul as divided into three parts: reason, spirit, and appetite. Sometimes these parts cooperate. Sometimes they antagonize each other so that desire pulls us toward our favorite temptation while reason tells us to stay away from it, and spirit makes us angry with ourselves for yielding to the temptation or wishing to yield to it. Plato speaks of these as "principles" of the soul, and this perhaps is a better term than "parts," because he clearly did not regard the soul as something that could be cut up into pieces like all of Gaul or a pie.

When it reasons, the soul serves as the director of life. When it desires, it is the life force itself. When the soul is full of spirit, it is not altogether clear what it is doing, although it would seem that it was asserting itself against all efforts to harm and destroy it.

In Plato's *Symposium* the soul is pictured as drawing the organism by a love or a yearning to create in beauty. Eros, the god of love, as the son of want and plenty reminds us strongly of the continuous balance and imbalance so characteristic of the life process itself. Today psychologists speak of this losing and regaining of equilibrium as homeostasis (cf. Chap. 5). The Eros is a force that is seeking to create life and to enjoy it in every conceivable form. From physical love that seeks to re-create in fleshly beauty to the love of perfection that results in the most subtle of artistic creations and the most precise of scientific theories, all human activity is powered by the Eros.

This notion of life as love finds its way into such seemingly different systems of thought as Christianity, on one hand, and Freudian depth psychology, on the other (Chap. 12). Freud puts forward the idea of the id as a force that drives the organism to seek pleasure and to express itself against all obstacles, at times even against itself.

In Book X of the *Republic*, Plato talks about the immortality of the soul. The soul is defined as something that is immaterial and simple which

cannot be destroyed either by its own evils or by the evils that befall the body. The soul is separable from the body and can be reincarnated in many subsequent lives and in different bodies. Socrates, in many of the Platonic dialogues, wished that his soul could escape from his body as soon as it was seemly for it to do so.

There is little doubt that Plato derived this notion of the soul from religion and that he bequeathed it to religion. And it was this fact that was later to make the soul such a stumbling block to scientific psychology. Because if the soul is held to be given to man by a *supernatural* power, then much, if not everything, that it does must be explained by the doings of that power and may well be beyond the understanding of men.

From Plato the world learned, therefore, that (a) the soul was a life force, (b) it had a goal—perfection in all of its forms, (c) it was immaterial and separable from the body, (d) it had many faculties or abilities (such as memory, reasoning, imagination, willing), (e) it could be healthy or unhealthy depending on the way its three functions dovetailed with each other. The Platonic teachings about the soul were to contribute much to the development of both psychology and theology.

How did Aristotle's view differ from Plato's?

Aristotle was Plato's pupil, although to judge by their writings one might suspect that Aristotle was the older and more conservative of the two. He took from Plato the fundamental notions about the soul, but he treated them with less dash and daring, more sobriety, and more common sense.

For example, although Aristotle regarded the soul as the principle of life, he could not see it as something apart from the body. On the contrary, the soul was for him the form (design, structure, formula) that made a particular body just the kind of body it happened to be. It is no more separable from the body than the act of cutting is separable from the ax.⁴

Aristotle looked to the soul to explain the way a living thing behaved. He found that animate objects exhibit an ability to nourish their tissues, ability to feel impulses from the world around them, and the ability to think or reason. Some living things had only the first ability (a cabbage);

⁴ Aristotle does say, however, that it is the part of the soul we call the mind that would be separable from the body if any part of it is separable (2).

some had the first two (a dog); some had all three (a man). He argued, therefore, that there must be three kinds of souls to explain these three grades of living things. In each case the soul was that particular patterning of matter which enabled it to perform as the kind of living thing it was.⁵

To say that psychology is the study of the soul would mean for Aristotle that it investigates that which enables organisms to keep themselves alive, to feel (sentience), to know, and to think. And this is not too far from what modern psychology regards as its proper subject matter. Plato provided Aristotle with a general map of human experience. Aristotle filled in the map with a wealth of detail.

What directs the development of the organism?

For Plato the soul not only was the moving force of life, it also directed life. The Eros was forever driving, but upward—toward higher and more abstract forms of beauty in which to express itself. So the journey was from beautiful bodies to beautiful institutions to beautiful ideas—and ultimately to the idea of beauty in itself. The direction was from body to mind, from the concrete to the abstract, from the particular to the general (3).

For Aristotle, the living thing did not live haphazardly either. It had a goal and direction at birth. This goal was its *entelechy*, that is, the basic map of its life-journey. Thus an acorn was potentially an oak and strove to become an oak. A man was *potentially* a rational animal and strove to become one. That men sometimes seemed to be working against their design and destiny was one of the puzzles of human nature. If man had a specific nature, how could he work against that nature? Not only psychology, but religion, literature, and all philosophy were preoccupied with this fascinating problem century after century.

We shall have occasion to note that scientific psychology regards this *entelechy* somewhat dubiously. Is there really any design or essence of human nature? Is it anything more than the body and nervous system that men inherit from their parents? Can human nature change? Is there a human nature that is the same for all men at all times and in all places?

⁵ The soul of a carrot is what makes it carroty. Today we might ask the plant biologist to tell us in detail what this is. He might give us a description of the cell structure of a carrot that would enable it to get nutriment, provide for its own reproduction, have certain shape and growth characteristics.

Or is the nature of man shaped by the culture in which he happens to be born and brought up?

It might be asked what particular difference the outcome of this controversy makes. Consider, however, the question as to what is the good life, the happy life, the good adjustment. Aristotle and Plato could say that the good was whatever went in the "natural" direction. What can be said by the psychologist who does not believe or cannot find any direction that can meaningfully be called natural? He has to find another yardstick for the good, the better, the happy. What sort of yardstick does he use? It will repay us to watch for this yardstick as we work through the text.

The soul, for both Plato and Aristotle, accordingly, is a principle that is used to explain the existence, unity, and direction of human experience.

How did Christian thinkers deal with the soul?

The early Christian Fathers and the Scholastics of the Middle Ages were concerned with the soul in two ways. First, they shared the interest of the ancients in how the soul enlivened the body and controlled its complex activities. This we might call the psychological interest. On the other hand, these thinkers were perhaps even more concerned with the role played by the soul in the Christian life. This we may call the theological interest.

In the psychological department St. Augustine worked out a Christian version of Plato's theories, while the views of Aristotle found general adoption during the Middle Ages, especially among the followers of St. Thomas Aquinas. The Aristotelian notion that the soul of a living organism was the form of its characteristic behavior was taken over, together with the differences among the nutritive, sensitive, and rational souls (4).

These souls represent levels of development from the simplest cell activity to the highest reaches of human thought. Each lower soul is the potentiality for the soul above it. The sensitive creature is a bodily creature, but with something new added—an organization that enables it to be *aware* of stimuli rather than merely to *react* to them. The rational soul adds a distinctive quality to man, the animal who has a nutritive and sensitive soul.

The theological interest in the soul takes us away from the more gen-

eral psychological problems. One can ask what happens in a person's experience when he has the feelings of guilt, repentance, forgiveness, redemption, salvation, grace, and sin. These would be psychological questions. When, however, we ask how the soul must have been formed for it to be saved, damned, sinful, and repentant; when we ask what relation the soul has to God and to man here and hereafter, we are asking theological questions.

Naturally, Christian thinkers did not and perhaps could not keep these two kinds of questions apart. St. Augustine, for example, in his *Confessions* was both a religious psychologist and a theologian. He gives us profound insights into agonies and ecstasies of a human being torn between pagan and Christian values. In doing so, he probes deeply into the role played by the will in all human experience. In more recent times the novels of Dostoevski and the writings of Kierkegaard, the Danish theologian-philosopher-psychologist, also exhibit this kind of penetrating understanding of human nature as it reveals itself in the struggle to live according to certain moral and religious demands.

In St. Thomas the soul is an entelechy, a dynamic formative influence that strives to realize the capacities of the organism. In particular, it actualizes the capacities for thinking and willing and as it does so, the behavior of man becomes more rational and more effective. But its ultimate goal is the unity of the soul with God, although during earthly life it is connected with the body of which it is the form. So here also the psychological and theological interests are woven together, but the latter is clearly dominant.

MIND AND BODY

As psychology became a science and a subject of study in its own right, that is, as it divorced itself from theology and philosophy, it spoke less and less about the soul. However, whenever psychology talks about the self, personality, or the ego—whenever it wants to regard a human being as a unified, directed stream of experience, it is raising the problem of the nature of the soul. It is the same old problem, but the language is new and different.

Suppose we abandon, for the time being, the search for the soul. Instead, let us turn our attention to observable human experience. Men do think, feel, will, imagine, reason, and remember, and in general they

move about and behave well or badly. And we can all vouch for the fact that we have these kinds of experience.

The next point to note is that we *have* this experience, or at least part of it, through our bodies.

When the organism dies it ceases to give evidence of *having* experience. We know too that, if an eye is damaged, we may be unable to see; if disease attacks certain parts of the inner ear, we become deaf. In brief, we gain some of our experience through our sense organs, and these are as much a part of our bodies as are our arms and legs (cf. Chap. 8).

Through our sense organs we get messages from our muscles and also from our internal organs, as anyone who has felt hunger or a stomach-ache knows. In recent years, moreover, it has been found that the way in which our ductless, or endocrine, glands work makes a difference in the kind of experience we have. The thyroid glands, for example, produce hormones that affect intelligence and emotional states as well as the rate at which the body uses up energy (5). Overactivity of the adrenal cortex affects such masculine characteristics as the growth of the beard.

All this points to the *fact* that the mind and the body do affect or influence each other. What is not so easy to answer is: How do they manage to do it?

Why is there a mind-body problem?

There would be no problem if our experience were all of one piece. For example, if all we ever experienced were tables, chairs, planets, and cabbages, we would not have this difficulty. Such objects behave with a high degree of regularity. They take up space, and the space can be occupied by only one of these objects at a time. They endure through time. This typewriter before me is in existence right now, and I have some evidence that it existed yesterday, but does the typewriter of tomorrow exist now?

As we squirm in a 98-degree temperature, we ask, "Where are the snows of yesteryear?" The heat is *present*, acting upon us *now*. The cold weather of a year ago is *absent*, yet is it wholly absent as I think of it now? Yes, it is present, but not in such a way that a thermometer would register it or in a way that would produce goose pimples.

To be present and yet not to be present—this is still the most intriguing of situations. The whole fabric of our memory is woven out of precisely

such stuff—the same sort of stuff out of which we also weave dreams and the thoughts of the future.

In imagination we wage battles that cost us fierce yet harmless scars. We imagine monsters and enemies that do not exist and delights equally nonexistent. Yet nonexistent though they are, the torment and ecstasy they arouse are very real.

How can the absent be present?

We solve this riddle of absent objects being present by the notion of symbols. If the absent objects are not there themselves—and clearly my tomorrow's breakfast cannot be present now "in person," so to speak—then they must send their representatives or delegates. These may be words, images, sentences, or some combination of these. In every case they *stand for* an absent object and can make us *think of* that absent object.

Clearly the symbols themselves are physical objects (marks on a paper, sounds, gestures), but the ideas they make us *think of* are not. The absent tower is a *meaning* and not a physical thing. Physical things can act on each other, push each other round, but they cannot *mean* each other (6).

Is it to be wondered, therefore, that the ancients thought they had a mind-body problem on their hands? Experience tells us of two orders of existence: the mental and the physical. Because our bodies behave as do all other physical things, there is no special mystery in the way they interact with other bodies. Drop a human body and it will fall pretty much like any other collection of molecules. Our body gets its fuel and turns it into energy as do other living systems. But how does this fuel-burning system of cells manage to house images, ideas, thoughts, and symbols? No dissection of the human brain or the nervous system has disclosed anything even remotely resembling an idea.

To the ancients it was clear that some experience, at least, involved the body. Hippocrates defined personality types in terms of the four humors—two kinds of bile, blood, and phlegm. Alcmeon of Croton was the first to recognize the brain as the chief organ of intellectual activity. Plato in the *Timaeus* gave a detailed account of how he thought the body took part in sensation and perception.

Nevertheless, the ancients—at least those following the teachings of Plato and Aristotle—were also convinced that not all experience de-

pended equally on the services of the body. Emotions and sensation were obviously inconceivable without bodily help, but such higher processes as discrimination, judgment, and reason seemed to depend on no special organ of the body. It was not difficult to take the next step and to argue that they depended on no bodily organ at all. This led to the setting up of two orders of experience, which resulted in the separation of mind and body.

CLASSIFYING AND UNIFYING EXPERIENCE

The ancients were quite aware of the many kinds of human experience. Even by the time of Plato the differences among sensation, perception, imagination, memory, reasoning, feeling, and willing were familiar. In addition, Plato had worked out the differences among opinion, belief, understanding, and reasoning as types of knowledge.

Also known were the different *modalities* of experience achieved through the senses. Each sense organ seemed to be the pathway for its own type of experience, colors, sounds, touches, and smells, and there seemed to be no way of comparing a sound to a color or an odor to a touch. Occasionally, people do report experiencing one modality in terms of another, for example, a certain tone as blue or a certain odor as green. This is called *synaesthesia*.

The ancients did not, however, find the separate receptors for pain, warmth, cold, pressure, position, and movement that we speak of today (Chap. 8). Instead, they lumped them together under the sense of touch.

What were the early notions about sensation?

There seemed to be general agreement that sensation was the root and beginning of everything man could know about the world around him. It was further agreed that sensation was produced by the joint action of (a) an object outside of the body, (b) a medium of some kind, and (c) some kind of reaction by the organism itself. What they did not agree upon was *what* came from the external object, *how* it affected the sense organ (eye, ear, nose, and so on), and *how* this energy was transmitted into the center of the body. There was still less agreement as to what happened after that.

There were two major types of theory. Democritus and other atomists,

Epicureans, and Stoics believed that the object sent off part of itself—either a fine film (phantasm) or some other ethereal representative—which literally passed into the sense organ and was thence transported into the inner recesses of the body, there to be perceived.

The other theory, typified by Aristotle, held that, although energy came from the object, entered the sense organ, and was transmitted inward, our awareness of this transaction was not a material or even a physical process. It was an "alteration of the soul" whereby the form of the object was taken out (abstracted) and grasped but not the energy itself. Thus when I perceive a chair I apprehend its various characteristics, but no part of the physical chair itself.

Sense organs. As to the nature of the sense organs themselves and the channels of energy flow, there was a wide variety of more or less plausible guesses. Plato, following Alcmeon and Empedocles, thought the eye contained a soft fire that sent out light to meet the light reflected from the object. He believed this largely because pressure on the eyeball could produce a sensation of stars or sparks. Little was understood about the transmission of energy along the nerve fibers or about the role of the brain in sensation.

Nevertheless, the guesses were not entirely wild. Aristotle, as well as others, was impressed by the important role of air and breathing in the economy of human life. The contraction and expansion of the lungs and the heat of the blood gave clues that here might be the source of the life-motion. It was not surprising, therefore, for so many of the early thinkers to get a picture of the body as a hydraulic system. Any movement or push from outside the body (through the senses) was a push on the blood and air within the bodily system. Thus these pushes could impress themselves on various internal organs and give rise to thoughts, or jog memories, or arouse images and emotions. What Aristotle called the "connatural spirits" later became the animal spirits that were used to explain how energies from outside entered the body and were translated into bodily actions.

In these matters the ancients had the right ideas, but the wrong details.

Like causes like. Another notion put some of the earlier investigators on the wrong track. It was the famous principle of like causes like. It followed from the principle that nothing could be in the effect that was not in the cause, and a violation of this principle would mean that something had come from nothing. As a result Empedocles, for example,

taught that for us to have an awareness of earth or water the sense organs and, in turn, the soul itself would have to contain earth and water in its own make-up.

This was a clumsy explanation and it did not encourage the closer study of sense organs to discover how light energy could be transformed into color experience. True, we still do not know how this is accomplished, but we do know that elements in combination have properties that they do not exhibit separately. Neither hydrogen nor oxygen exhibits the properties found in water.

The common sense. The ancients and the medievals spoke of a common sense, that is, a sense that had no special bodily organ as has sight or hearing. It was clear to them that the eye can apprehend only color and the ear only sound, yet the same man is aware of the violin as orange colored and as sounding middle C. Something must perceive both color and sound. Furthermore, we do become aware of some qualities with more than one sense, for example, roundness, which we can both touch and see.⁶ We not only see redness, but we are aware that we are seeing redness, smelling sauerkraut, and hearing middle C. From all these and other considerations it appeared clear to Aristotle and his successors that there must be a special sense that could do all these odd jobs connected with sensation. Finally, to the common sense also belong the functions of memory, imagination, and dreaming, because each of these combines and relates images.

This apparently small point will loom larger as we come down to modern psychology. The common sense, like the soul and the self, is used to explain the unity of experience, but although they all seem so necessary for this purpose it is difficult to observe these agents in our experience. Have you ever sensed your common sense?

How is sensation developed into knowledge?

Memory and imagination. That memory and imagination were special kinds of experience also was known to the ancients. They agreed that memory was a kind of storing of sense experience for future recollection. They also knew that we have the power to combine images in many ways so that we can think of purple cows and kings of the United States,

⁶ Among the common sensibles Aristotle listed motion, rest, size, shape, and number (7).

although no such creatures ever existed. Aristotle, Plato, and others also realized how much our highest thinking depends on imagination and memory.

Further, it was realized that this storing of experience was somehow done in the body, but where and how? We still do not know, although we are fairly sure that the brain, or rather certain sections of it, has something important to do with it.

Aristotle was among the first to realize that in memory and imagination experiences are not simply taken from storage. When we do take them out we find they have time labels on them giving us an idea of *when* we first experienced them. Or we notice that we are putting them together for *future* use. How does this labeling occur?

Laws of association. Plato, Aristotle, and Augustine were all aware of what we today call the laws of association. Suppose as you are reading this book you hear on the radio the strains of "The Star-Spangled Banner." What will you think of immediately thereafter? Nowadays one might very well think of the beginning of a baseball game or a prize fight because they are so likely to have been experienced together (contiguity). Or one might have an image of the flag because the colors of the flag were so vivid when the national anthem was heard last time. Or one might recall "Columbia, the Gem of the Ocean," another patriotic song (resemblance), or "Sweet and Low," which is about as different from "The Star-Spangled Banner" as a song could be (contrast).

The laws of association are principles that tell us what governs the connections among parts of our experience. Resemblance, contiguity, contrast, and vividness are all factors in determining what we shall connect with what.

These laws are of particular importance because in later centuries psychologists thought that, given sensations, images, and feelings as elements and the laws of association to serve as cement, they could build up all our experience, no matter how complex (Chap. 4).⁷

Higher forms of knowledge. Opinion, belief, conviction, understanding, and reasoning are the other recognized processes involved in knowledge. These too were carefully classified, described, and argued about before the end of the Middle Ages.

⁷ For Aristotle, however, the laws of association of ideas were merely a description of the way we try to recall something we have temporarily forgotten. It is an attempt to reinstate the original sense impressions in the order we experienced them. *De Anima*, 2, 451b, 16-22.

From Plato we get the persistent notion that over and above the knowledge that comes through the sense organs, which is developed in experience by perception, memory, and imagination, there is a higher kind of knowing that does not involve the body at all.

Such a notion depends, of course, on whether there can be an immaterial soul. There has always been a school of thought that regarded this as mystical nonsense, but the idea could not be shaken off even by so cool a head as Aristotle's. In the next chapter we shall see that the rationalists, who were prouder of their science than of their piety, also held out for a faculty or power in man that could apprehend certain truths with the mind itself and independently of sense experience. What sense experience does one need, they might have asked, to know that the straight line is the shortest distance between two points? Or that equals added to equals give equals?

If there are truths that never change regardless of time and place, then there may be a kind of reason that is equally immaterial and eternal. So the argument ran and still runs. The medieval thinkers in particular concentrated on the study of the higher processes of the mind. For this there were many reasons, not the least of which was the rediscovery of Aristotle's work on logic and its bright promise as a tool for classifying and demonstrating all human knowledge.

Conscience. There was one particular form of knowledge that naturally interested the Christian thinkers more than the Greek. This was knowing that we have sinned. It was achieved via a special faculty or power of the human soul and was called *synderesis*.

Where do the emotions fit into experience?

Affections, desires, feelings. Another class of experiences we call the feelings and emotions. In the literature these are also referred to as the passions or the affections, indicating that it was generally agreed that they were the results of actions *upon* the soul or the body.

This type of experience baffled the ancients, and it baffles us today. Emotions are familiar enough; the trouble is to know where to locate them and how to explain them. We have learned much about what goes on in the body during strong emotions. In violent anger the hair is raised, there is a flushing of the face, blood pressure is raised, and so forth. The body seems to be mobilized for emergency action (cf. Chap. 6).

But do these spectacular changes occur in us *because we understand*

that Mr. X has insulted us? And, if so, how can an understanding upset the chemistry of the body?

The ancients realized what was involved, but in a confused way. Plato thought it was the violence of the motion imparted to the internal fluids that gave rise to emotional experience. Desire was literally a movement of the soul from want to completeness—a sort of fluid-drive arrangement.

Aristotle said that pleasure is what we feel when any human role is played without impediment (8). Any function gives pleasure when operating well. The pleasurable, in turn, prompts desire, while the painful prompts aversion even in thinking activity. Images of the pleasurable and painful likewise can arouse desire or aversion.⁸

Nowhere is the union of mind and body so evident and so close as in our emotional life. Not only is it impossible to describe our emotions except in terms of what our bodies do, but even such matters as character and temperament have tempted thinkers to find some bodily basis for them.

Temperament and character. Hippocrates, the ancient Greek physician, argued somewhat as follows:

The four fundamental ingredients of all reality are air, which is dry, fire, which is hot, water, which is moist, and earth, which is cold. In the human body there are: yellow bile, which is dry, blood, which is hot, black bile, which is moist, and phlegm, which is cold. The proper proportion of these in the body maintains health, and an excess of any one produces a particular kind of physiological and emotional imbalance.

The predominance of any one of these ingredients gives us a temperament which is respectively melancholic, sanguine, choleric, and phlegmatic, and these terms and ways of speaking are still with us. These liquids were called humors, and we still speak of our friends being in good, bad, and nasty humors.

This may sound naive to us in these days of endocrine glands and the hormones secreted by them into the blood stream, but the principle that certain constituents of the blood determine how we shall feel was apparently not naive at all.

Roback points out that this theory of the humors has had a long and tenacious history.⁹

⁸ Although Aristotle discussed the emotions and will in the *Ethics*, this was not his most important contribution to psychology.

⁹ He refers to Burton's *Anatomy of Melancholy*, Andreas Rudiger's *Physica Divina* (end of 17th century), and many other variations of the theory (9).

Other bodily keys to the human temperaments included: the flow of the blood stream, the nervous system, the shape of the brain, and types of bodily proportions (10) (cf. Chap. 5).

Character. By character we mean a fairly permanent tendency on the part of an individual to act and feel in a certain pattern throughout a series of different situations (cf. Chap. 16). If, for example, a man is miserly, we expect him to be reluctant about expenditures under most circumstances and not simply in restaurants. The question here is whether individuals do have a relatively fixed character or whether each different situation elicits its own peculiar response. In other words, does Mr. X raise his hat to Miss Y because he is a gentleman or because he has formed the specific habit of raising his hat in the presence of objects like Miss Y?

As to character, A. A. Roback remarks:

There is one department in psychology in which no progress seems to have been made for about two thousand years, in spite of the fact that it was perhaps the first topic to attract attention (11).

Character has been studied in two general ways. In addition to seeking bodily signs of character, students of human nature have described various types of character. Plato, in the *Republic*, for example, describes the aristocratic man (who loves excellence), the timocratic man (who loves honor), the oligarchic man (who loves wealth), and the democratic man (who loves everything without discrimination) (12). Aristotle, in the *Nicomachean Ethics*, gives us a description of the liberal man, the courageous man, the magnanimous man (13).

Theophrastus, a pupil of Aristotle, wrote a book devoted to these character studies, called *Characters*. Subsequently numerous essayists and observers of one kind or another wrote collections of character sketches that were supposed to be more or less typical, and on the whole, unflattering to mankind and its pretensions to goodness and virtue.¹⁰

These character sketches are interesting to read and often demonstrate the shrewdness of the observer and the sharpness of his wit. Unfortunately, there are so many types that they are practically useless for "typing" anyone we happen to know. The search for a few basic character types goes on and will go on because if all people of a certain character type behaved in a certain way, then our new-found friend

¹⁰ Roback summarizes and evaluates the work of such men as John Earle, Charles Bucke, Addison and Steele, Bernard de Mandeville, La Rochefoucauld, La Bruyère, and Vauvenargues (14).

could be put into this or that classification and we could predict how he would react to certain kinds of job, certain kinds of responsibility and so on. We would not want, for example, a character type who likes to gamble on the horses to serve as the cashier in our bank. Young ladies would be wary of young men who, when they get tired of their responsibilities, either flee them or remove them.

What is the basis of striving?

The striving element in experience, like the emotional element, is familiar yet elusive. Plato and Aristotle, as we have seen, assumed a tendency on the part of every living thing to achieve its own perfection (entelechy). A cabbage presumably is blissfully unaware of this striving. A cow feels its striving but does not know what it is striving for. Man not only can be aware that he is striving, but he can also frame the notion that his striving is toward his own perfection.

There are many grades of striving, topped by the kind that is guided by human reason. Just how much control we have over this striving and whether it is desire or reason that does most of the controlling are problems that belong primarily to philosophy and ethics, but they are topics for psychology as well. The problems of motivation, drives, needs, and volition still occupy prominent places in our textbooks and promise to remain with us as perennial themes. In any event, by the end of the Middle Ages these problems had been argued in about every conceivable direction.

WHAT IS THE GOOD LIFE?

We thus come to our fourth great theme of philosophy and psychology and the sort of questions that to the layman are most truly psychological. What makes us behave so as to become hateful to others and occasionally even to ourselves? What is a healthy personality and what is an unhealthy one? What in general makes for the happy life and for the unhappy one?

What is the just or happy soul?

We noted earlier in this chapter that the driving force of life for Plato was the Eros which revealed itself as a desire for bodily satisfaction (appe-

... a desire for self-assertion (will, spirit, or some form of emotion), and a desire for truth and goodness (reason). These make up the three parts of the soul, according to Plato, and men fall into personality types as one or the other of the parts is dominant in their lives. There are types of men who are dominated by their appetites; others are ruled by a love of power and honor, while still others, though never many, follow the dictates of reason (15).

Ideally, Plato taught, the parts of the soul are in harmony, and the personality is in good health when appetite is controlled by reason, and emotion or will is on the side of reason, even though appetite pulls in the contrary direction. Personality problems arise whenever this arrangement is disturbed. For example, when we use our thinking powers to figure out ways and means of satisfying our appetites, we have turned matters upside down, for now appetite is telling reason what to do and reason is simply finding ways of doing it. Matters are not much better when reason and appetite are both under the domination of the lust for power and self-assertion.

The unhappy soul, for Plato, is the divided soul because injustice

... must surely be a sort of civil strife among the three elements [of the soul], whereby they usurp and encroach upon one another's functions and some one part of the soul rises up in rebellion against the whole (16)

and

Justice is produced in the soul, like health in the body, by establishing the elements concerned in their natural relations of control and subordination, whereas injustice is like disease and means that this natural order is inverted (17).

Thus, we find in Plato the enduring notion that the root of mental ill-health is conflict within the personality, that is, when our desires and emotions distort our knowledge and when our action belies what knowledge we do have.¹¹

Can the unconscious affect us?

Today we are quite familiar with the notions of the unconscious. Thanks to the movies, magazines, and novels, there is scarcely a housewife who

¹¹ The Stoics, for their part, were sure that the desires and emotions always disturbed the mind and defined them as perturbations of the mind.

does not know about suppressed desires and repressed wishes, who is not aware that forgotten events continue to ferment in our unconscious and rise to plague us. In modern times these notions were made familiar and famous by Sigmund Freud. It took a rather long time and it meant overcoming a lot of opposition, but Freud almost lived to see the day when his ideas were taken seriously, not only by scholars and psychotherapists, but also the day when they were to become part of the daily speech of millions all over the civilized world.

Perhaps one of the best known of Freud's theories is that our dreams are a peculiar re-enactment of our wishes which could not stand the scrutiny of our conscience during waking hours (cf. Chap. 13). Yet a very long time ago, Plato spoke of certain unlawful desires.

. . . probably innate in everyone . . . which bestir themselves in dreams, when the gentler part of the soul slumbers and the control of reason is withdrawn; then the wild beast in us, full-fed with meat and drink, becomes rampant and shakes off sleep to go in quest of what will gratify its own instincts. As you know, it will cast away all shame and prudence at such moments and stick at nothing. In phantasy it will not shrink from intercourse with a mother or anyone else, man, god, or brute, or from forbidden food or any deed of blood. In a word, it will go to any length of shamelessness and folly (18).

What is the role of religion in mental health?

Not only did the ancients know about mental illness, but every great religion is and has been concerned with this problem.¹²

The ingression of the Hebraic influence through Christianity into the Western tradition naturally affected the psychology of happiness as well as every other area of thinking.

This type of thought brought God intimately and directly into the personal life. Greek thinkers talked about God, but for them He was more likely to be a theoretical principle rather than an active participant in the *individual's* daily life. Even the Fates that play so large a role in the Greek tragedies do not impress us as being concerned so much with Oedipus or

¹² To be sure, there have been down the ages those who believed that mental illness was not an illness at all, but the possession of the victim's body and soul by the devil or one of his representatives, and it was not until recently that it was regarded as a disease.

Creon as with carrying out certain laws of the relation of men to each other and to the gods.

It is this relation of each man to God that was to occupy the attention of theologians and philosophers, Jewish, Christian, and Arabic alike.

How the human soul gets away from its godly origin and how it can return to it are psychological as well as practical problems. They demand the close examination of one's soul, the conscience, the sense of sin, repentance, and guilt.

The Greeks sought their formula for the good life in the nature of man, although in Plato we already find that it is man's nature to seek his perfection outside of his own nature. We find eloquent echoes of this in Plotinus and particularly in St. Augustine, who speaks of the good life as the return to God through wisdom. He recounts the seven stages by which life comes from God and returns to Him (19).

Although they had to rely on unsystematic observation; the ancients saw, as do all modern mental hygienists and therapists, that to restore the unhappy person to health is to change the way he perceives the world and his place in it. The remedy for illusions is to perceive reality; the remedy for imaginary diseases is the realization of the true state of the body; the remedy for acute anxiety is to get a balanced view as to what needs to be feared. This does not mean that people are cured by being told these comforting things once or twice. How to get the mentally disturbed and the emotionally disturbed patient to "see" things differently taxes the best skill of the therapist, but this, in the last analysis, is the goal of his therapy.

SUMMARY

The purpose of this chapter was *not* to argue for the omniscience of the ancients or to say that the ancients had said everything that modern psychology is now trying to say. This would not be true. On the other hand, the chapter may have convinced you that the basic problems or the great themes of psychology are old and that they furnished the soil out of which modern psychology was to grow.

What are these great themes?

1. We asked and are still asking: What is the nature of the soul? What does it do? How can we study it? How does modern psychology deal with it? We saw that as something to be found and studied in the laboratory

the soul is of little use to the modern psychologist. It is more of a hindrance than a help because it tempts us to explain human behavior by blaming or crediting the soul, which is, really, no explanation at all. But in so far as the soul is the name for a principle of initiating, unifying, and directing experience, the soul is very much alive in psychology, because it is always pertinent to ask what holds together the diversity of human experience from day to day in one stream that we call "mine" or "yours."

2. Another great theme is the relation of mind to body. This was originally a philosophical question because there seemed to be two kinds of being so different that it was difficult to see how they could ever have anything in common, even though the fact that they worked together was clear to everyone. How does the body affect the mind and vice versa? That is still a question on which modern psychology is seeking light. We hope to get some of this light from the study of the endocrine glands, psychosomatic medicine, and the nervous system.

3. Another great theme is the way we classify and unify our experience. How do we know truly? Why do we believe falsely? These are ancient philosophical questions that find their modern counterparts in our studies of sensation, perception, and the thinking processes. And this is of far more than academic interest because the way we act depends on what we regard as true, and how we feel fashions to some extent the way in which we perceive the world. To get people to "see" things in a particular way, therefore, is one of the best ways to control their feelings and their actions which result from these feelings.

In addition to knowing our world, we also feel and will. How are our emotional experiences to be integrated with our thinking and doing? What about our more or less permanent disposition to think, feel, and act, that is, our character and temperament?

4. Finally, there is the great and general theme of how we can achieve and maintain mental health, or what comes to the same thing, happiness. Once more, this is an ancient problem and also a modern one.

There is, therefore, no abrupt break between ancient philosophy and modern psychology. Their basic interests are the same, although, as we shall see, their methods have come to be quite different. Long before modern experimental psychology came into being, the major problems were outlined and analyzed and much information had been assembled. The ancients had their limitations, but the best of them were neither lazy nor foolish.

PROJECTS FOR RESEARCH AND DISCUSSION

The projects for Chapters 2, 3, and 4 could be of two kinds. The instructor may wish to have the students sample some of the ancient philosophical and psychological literature in its original form. Or the student may be guided to read contemporary material and to discover its resemblance or relation to earlier doctrines discussed in the text. The difficulty of finding and understanding the first kind of material has led us, wherever possible, to use projects of the second kind.

PROJECT I

Topic: Classification of experience into kinds or types

Assignment: Read in E. L. Hartley, H. G. Birch, and R. E. Hartley, *Outside Readings in Psychology* (New York: Thomas Y. Crowell Company, 1950), "The Mind and Its Functions" by Joan Corrie, pp. 720-30. This selection was taken from the author's *A.B.C. of Jung's Psychology* (London: Routledge and Kegan Paul, Ltd., 1932).

Questions for Class Discussion

1. What, according to Jung, are the four forms of psychic activity? How is each distinguished from the others? How does each resemble the others?
2. How are these four functions used to classify personality types?
3. Explain: "The unconscious of the extravert is introverted; that of the introvert is extraverted."
4. How are the terms "objective" and "subjective" related to (a) the four functions and (b) to "introvert" and "extravert"?

PROJECT II

Topic: A comparison of a modern view of psychotherapy with Plato's view of the healthy soul

Assignment: Read in Hartley, Birch, and Hartley, *Outside Readings in Psychology*, pp. 754-64, "The Nature of Psychotherapy" by Lawrence S. Kubie, taken from *Bull. New York Acad. Med.*, Second Series, 19: 183-94.

Questions for Class Discussion

1. How does Kubie distinguish normality from abnormality?
2. To what extent does the quotation from Plato in the text remind

you of what is said in this selection about the role of the unconscious in neurotic behavior?

3. Does Plato's theory of the "just" or healthy soul as a harmony of reason, spirit, and appetite have any relation to the task of psychotherapy as described in this chapter?

PROJECT III

Topic: The need for historical backgrounds for a study of psychology in general education

Assignment: Examine at least six current textbooks in general psychology and try to answer the following questions:

1. How much historical background of psychology is given in each text? Is there a wide or narrow variation among the texts in this regard?
2. Summarize briefly the topics touched upon in the historical background of each text. Are there important variations with respect to topic or the amount of space accorded to the topic?
3. What seems to be the general view of your classmates regarding the value of historical background in a course of this kind? Do they look upon such a background as (a) desirable but not essential, (b) both essential and desirable, (c) neither essential nor desirable?

RECOMMENDED READINGS

- ARISTOTLE. *De Anima*, Bk. III, Chaps. 1-11 will be found in *Introduction to Aristotle*, edited by RICHARD McKEON. New York: Modern Library, 1947 or in
 ———. *Selections*. New York: Charles Scribner's Sons, 1938.
- BRENNAN, ROBERT E. *Thomistic Psychology*. New York: Macmillan Co., 1941, Chap. 2.
- BRETT, G. S. *A History of Psychology*. Ed. by R. S. PETERS. London: Macmillan and Co., 1953.
- DENNIS, WAYNE. *Readings in the History of Psychology*. New York: Appleton-Century-Crofts, 1948, Selections 1 and 2.
- MURPHY, GARDNER. *Historical Introduction to Modern Psychology*. Rev. ed. New York: Harcourt, Brace and Co., 1951, Chap. 1.
- PLATO. *The Republic*, 434D-441C, 543A-579C in *The Modern Students' Library*. New York: Charles Scribner's Sons, 1928, or in
 ———. *The Republic of Plato*. Trans. by F. M. CORNFORD. New York: Oxford University Press, 1945.
- WILD, JOHN. *An Introduction to Realistic Philosophy*. New York: Harper & Brothers, 1948, Chaps. 17, 18, 20.

3

Beginnings of Modern Scientific Psychology

THE PROBLEM OF METHOD

*How did the ancients reach their conclusions?
How did science affect the problem of method?*

THE RATIONALISTIC APPROACH

*How does the rationalistic method operate?
How is the mind-body problem "solved"?
Can we control our experience?*

THE EMPIRICAL APPROACH

*How much of our knowledge is innate?
Do we have faculties?
What is the empirical method?
What is associationism?
How was associationism attacked?*

FROM what has been said so far, it may be concluded that the ancients made real beginnings toward a systematic study of psychology. They defined the major problems and ventured a variety of solutions. Yet we do not think of psychology as a science in the hands of even such great thinkers as Aristotle and St. Thomas Aquinas. Why not?

THE PROBLEM OF METHOD

It is all a matter of method. Everything depends on method. A good deal of what the ancients said about human behavior was true; no one

denies that. Much of what modern psychologists say about human behavior is probably false, and no one would argue about that either. Why, therefore, do we place so much more reliance on today's psychological results than on those of the ancients?

How did the ancients reach their conclusions?

Take, for example, the way in which Plato proves that there are three distinct functions of the soul. First, he gets us to admit that the same thing cannot do two opposite things or be in two opposite states with reference to the same object at the same time.

There follow a number of illustrations to show, for example, that when people say a top is moving and standing still at the same time they are not speaking accurately. What they mean is that one part of the top, its axis, is standing still while the various points on the circumference are moving. Now apply this principle to a function like thirst and drinking. Thirst has as its natural object a fluid, and to be thirsty means to crave fluids. Therefore, argued Plato, whenever anything impels an organism that is thirsty *not* to drink, it cannot be *thirst* that is both impelling and restraining the creature. Accordingly, the soul contains a principle different from desire (thirst), which can oppose it.

Experience plus logic. The argument has three parts:

1. The same thing cannot be two opposite things or states at the same time. This is a principle.
2. A person can want to drink and yet want not to drink. This is the result of observation.
3. Therefore, wanting to drink and wanting not to drink cannot be aroused by the same faculty. This is an inference from 1 and 2.

Now, is it a *fact* that we have two different faculties in the soul, one that would impel us to drink and another that would keep us from drinking? How would you decide such a question? Could you take the soul apart to find, see, and touch the functions? Could you set up an experiment that would help us decide the issue? In asserting that there were different functions in the soul was Plato doing anything more reprehensible than what physicists did when they said that there must be parts to the atom to account for the way atoms behaved?

This type of thinking we call construction. That is, we construct a design of how something *must* be made in order to explain how it works.

Thus, if our best friend suddenly turns cool, we infer that he must be offended at something we have done. We then construct an ego that can be offended.

If all scientific thinking goes beyond what can be touched, heard, and seen, if all sciences construct models to explain the behavior of their objects, then what is so unscientific about Plato's argument?

This shows up better in another example. Democritus argued: That which is not in motion cannot move anything else. Here is one of those "self-evident" principles which, incidentally, Aristotle later challenged. Therefore, Democritus argued, the soul has to be in motion if it is to cause life, which is itself motion. Democritus regarded heat or fire as a source of motion because fire is always in motion. He concluded that the soul was made up of fiery or spherical atoms (1).

This is a sample of correct reasoning based on correct, albeit superficial, observation. Fire is in motion, but once we think of it as an instance of oxidation, the restlessness of the flames is no longer an important motion, and the motion of molecules and atoms, not visible at all, becomes important indeed.

How did science affect the problem of method?

Along came Galileo, Kepler, Copernicus, and Newton to give us a kind of knowledge that not only seemed to have logical certainty but also carried *complete* conviction. And the conviction was brought about, first, because the reasoning involved could not be denied and, second, because observable results could be predicted with extraordinary accuracy. It was as if these men were reading the mind of nature.

Since it was clear that these men and their like were not magicians and that any man could, if he had the skill and energy, perform similar "miracles," it had to be admitted that it was their method that was producing these remarkable results.

1. The method used by these new scientists involved *observation*. Galileo did not just gaze at all falling bodies, he chose to observe falling bodies under conditions that would prove one theory about them and disprove a rival theory. Galileo thus designed what is called a crucial experiment at the leaning tower of Pisa. It served to show that if the falling bodies did not differ too much in the amount of air they displaced they would fall at the same rate regardless of differences in weight. It is

from this kind of observation and experiment that scientific generalizations or laws are framed.

The astronomers we have mentioned also noted that valuable information about the planets could be learned without knowing their fundamental nature. If, for example, the speed and path of a planet were known, its future positions could be predicted accurately, even if the composition of the planet remained unknown.

2. The new method succeeded so spectacularly because it could use mathematics. Mass, time, distance, weight can be quantified, that is, there can be so-much-and-so-much of them. And if one could set up equations such as $s = vt$ one had only to know two quantities in order to figure out the third, because both sides of the equations had to balance. If one had a principle that no matter or energy was ever created or lost, then whenever a certain amount of something turned into something else with a loss or increase of weight one would immediately look for the cause of the increase or decrease. And this led to searches that built up our modern physics, chemistry, and mechanics.

Is it any wonder that the philosophers of the seventeenth, eighteenth, and nineteenth centuries were inspired by the successes of astronomy, physics, chemistry, and biology to try to study human behavior in a way that would give equally sure and sensational results?

In this chapter we shall sample briefly some of the earlier attempts to achieve this dream. We shall see that the rationalists attacked the problem from the deductive, mathematical side; the associationists, from the observational, empirical side; the physiologists utilized the instruments of other sciences to their own purpose, and the biologists approached psychology in still another way.

THE RATIONALISTIC APPROACH

Rationalists are thinkers who have unusual faith in the power of human reasoning to solve problems. Given premises that are certain, the human mind can by watching its logical step draw out (deduce) conclusions that are equally certain. Just as the conclusions of mathematics are necessary and certain once the axioms, postulates, and methods of reasoning are accepted, so, ideally, can the conclusions of the psychologist and the philosopher be necessary and certain—once they can find self-evident and unquestionable principles to start with.

René Descartes (1596-1650), Benedict Spinoza (1632-77), Thomas Hobbes (1588-1679), and Gottfried Wilhelm von Leibniz (1646-1716) constituted a quartet of rationalistic philosophers. We shall discuss their views briefly, not with any intention of expounding their philosophy but rather to illustrate the use of the rationalistic method in problems that sooner or later come home to roost in psychology.

How does the rationalistic method operate?

Aristotle and St. Thomas Aquinas were rationalists, but they differed from those mentioned above in that they did not have before them the brilliant successes of both physics and mathematics in the achievements of Galileo, Copernicus, Kepler, and Newton.

Descartes argued that philosophers ought to proceed as do the mathematicians, namely, from ideas that are clearly defined and perfectly distinct from each other. And what two ideas could be more different from each other than those of mind and body? What, for example, is contained in the idea of matter? Our senses tell us a piece of wax has a certain size, shape, and odor. But, says Descartes, heat changes all this. All that remains with the wax throughout all its changes is its extension—its spread-outness in space (2). The mind, on the other hand, is that which thinks, feels, imagines, desires, and wills. It is not extended and divisible. It is a "thing that thinks," while matter is "a thing that has extension" (3). The body, and all that pertains to it, is to be explained by the laws of mechanics. The mind, and all that pertains to it, is to be explained by the laws of the mind.¹

In the remainder of this section the rationalistic deductive method will be illustrated by the way some of the thinkers we have mentioned dealt with such problems as mind and body, the unity of experience, and the control of experience to achieve some ideal of the good life.

It is common knowledge that when we see a red flag or a blue sky rays of light of a certain wave length hit the retinas of the eyes and are transmitted in some fashion by the optic nerve to a fairly well-localized section in the brain. The optic nerve is really an extension of the visual area of the brain. So far, so good. But, although we say glibly that red light has

¹ "All that which we experience in ourselves which we see can also take place in bodies entirely inanimate is to be attributed only to our own body; and, on the contrary, all that which is in us and which we cannot conceive in any manner possible to pertain to a body is to be attributed to our soul" (4).

a wave length of 650 $m\mu$ and blue light that of 450 $m\mu$, light waves are not believed to be red, blue, or any other color, but rather peculiar oscillations of colorless energy. How do they get colored in the process of penetrating our brains? Light waves, Descartes would say, are physical objects—bodies—fine, tenuous, invisible to the naked eye, but physical to the end, for they can be measured, they take up space, and if we are to believe modern physics they can even be swerved out of their paths by magnetic forces.

Redness and blueness, on the other hand, as well as sourness, fragrance, and dizziness are not themselves bodies or physical objects. How can we make the jump from light waves to redness? From gases to fragrance? From spasms of the stomach walls to hunger and sometimes to nausea?

How is the mind-body problem "solved"?

During this rationalistic period three theories of how the mind is related to the body were worked out and they have not changed much to this day.

Interaction. The obvious fact is that mind and body are united somehow and that a particular body is hitched to a particular mind for better or for worse. There are times when we would gladly volunteer to feel the pain of another's injured body, but this we cannot do, although we can feel pain of another kind in watching someone else's pain.

The simplest theory is, therefore, to say that mind and body *interact*. My mind tells my hand to stay out of other people's pockets, and when my body bleeds I feel pain and anguish. When the thyroid gland secretes too generously, we feel irritable and are unable to sit still; when it is too sluggish, our marks in school may drop (5).

The problem, of course, is to explain how what Descartes had sundered could ever be brought together again. He did it by regarding the pineal gland as a switching station for influences traveling from mind to body and from body to mind. But when all is said and done, a gland is a gland, and it is body—not mind. More than two centuries later George H. Lewes argued that all living tissue is "sensible," although not all sensibility becomes conscious to our experience. On this view, the mental is not the same as the conscious nor is the physical the same as the unconscious. Thus the tissues in my brain and everywhere else are mental because they can be stimulated, but they may not all be conscious.

This comes close to abolishing the difference between mind and body.

But the difference between a conscious and an unconscious experience is just as great as that between body and mind. It is the difference between a tooth that could ache but doesn't and one that could ache and does. The only difference is the feeling of the ache, but that makes all the difference.

Parallelism. If we cannot have interactionism and really believe our own explanation of it, then we may turn to parallelism in one form or another. Spinoza says that body and mind are two aspects of one reality, and that they correspond precisely because they are two ways of expressing one and the same thing, namely, God or nature (6).

The mental and physical are two separate series of events, but there is a correspondence of what goes on in one and in the other. Every time I see red, for example, something occurs in my brain, but one event does not cause the other. They just happen to happen that way—why, nobody can say. Leibniz held that every living—indeed, every individual—thing is made up of monads, or souls, that is, centers of greater or less spiritual activity. By this activity each individual thing mirrors the whole universe from its own perspective or point of view without interacting with anything else. How do we know that it mirrors the world correctly? Because in making or choosing the best of all possible worlds, God pre-established a harmony so that what went on in one monad was perfectly adapted to what was perceived by every other one (7).

Reduction. Finally, one can argue that mind is *nothing but* a form of body. For example, Hobbes argued that experience is nothing but motions induced into the sense organs. Or one can argue that body is nothing but the concealed and disguised workings of mind (Berkeley, Leibniz). The former argument (materialism) and the latter (idealism) are both plausible because we never find minds or human bodies separately, but these arguments are never convincing to the ordinary man or even to the philosopher in his ordinary moments. The kind of body that the materialist calls mind and the kind of mind the idealist calls body are just about as far apart as were the mind and body of Descartes.

In short, you will hear much in modern psychology about the evils of *dualism*, that is, of separating mind and body. Let us remember, however, that nobody in his right mind or body ever doubted their connection, but it is one thing to say that you cannot separate them in actuality and quite another to explain how they stay together.

The emotions. The absorption of the rationalists with the problem of mind and body led to an interest in what they called the passions and

what we now call the emotions. This was natural because, in emotion, mind and body seem to be even more indistinguishable than usual. Any anger beyond mild annoyance shakes up the body so that we tremble, flush, and stammer. It is difficult, if not impossible, to describe our stronger emotions without referring to how the body behaves when we have them. What can we say in describing our fear in being confronted by a big bruiser in a dark alley save that "I could feel my knees turning to water"? Or, "I could hear my heart thumping in my chest!"

It was perfectly clear to the rationalists, therefore, that an emotion was a physiological condition brought about by the movement of blood, air, warmth, cold, and so on, in and around the vital organs, such as the heart, lungs, and liver. (How else could we get the trembling, flushing, and blanching?) What was not clear was how a thought or a perception or a judgment that was "mental" could start the animal spirits racing around to affect the "emotional" parts of the body. How, for example, does my seeing a bear and the thought that this bear is dangerous get my blood to racing around so that I tremble, run very fast, and breathe heavily?

But if the rationalists could not answer the question, they did show their insight into human experience by their classification, definition, and combination of emotions. Compare the following passages concerning love:

Descartes (8):

Love is an emotion of the soul, caused by the motion of the spirits, which incites it to unite itself voluntarily to those objects which appear to it to be agreeable.

Hobbes (9):

. . . *Conceptions* and *apparitions* are nothing *really*, but *motion* in some internal substance of the *head*; which motion *not stopping* there, but proceeding to the heart, of necessity must there either *help* or *hinder* the motion which is called *vital*; when it *helpeth*, it is called *delight*, *contentment*, or *pleasure* which is nothing *really* but motion about the heart, as conception is motion in the head . . . and the same delight with reference to the object is called *love* . . .

Spinoza (10):

Love is nothing but joy accompanied with *the idea* of an external cause, and *hatred* is nothing but sorrow with the accompanying idea of an external

cause . . . he who loves a thing necessarily endeavors to keep it before him . . .

The difference of this method from the modern approach is illustrated by an investigation on emotion conducted by Pratt (11), who tried to ascertain among other things the objects that children feared. Instead of trying to *deduce* what combinations of emotion one could get from joy, grief, and desire, Pratt was interested in the "fears" that a definite set of rural children said they had. From these data he hoped to *induce* some generalizations, more or less complete, about this particular type of emotional experience in this type of children.

Can we control our experience?

The rationalists were also interested in the possibility of controlling human conduct by reason. This again is a form of the mind-body problem. Let us see why. The emotions were and still are regarded as indicators of how we think matters are going with us. If we are afraid, it is because we think that something will injure us; if we are angry, it is because something has hurt us or we thought it had. We can be mistaken about what is happening and what it will mean for us. Seeing two people in a corner conversing in whispers, we are tempted to infer that they are talking about us, and since it is in whispers, the inference must be that what they are saying about us is not flattering. This will cause in us an emotion and we may be "moved" to do something for which we may well be sorry if we discover that we were mistaken in the first place.

Not only can our emotions be aroused by false impressions and thoughts, but, when aroused, they so fill our consciousness that we feel compelled to act immediately and vigorously without thinking about alternatives or consequences.

Hence the long tradition to the effect that the passions were the trouble-makers in human life. The anticipations of pleasure and the fear of pain were so strong and insistent that rational conduct was nearly always jeopardized by them.

The rationalist solution was to attach the strength of the emotions to true or adequate ideas, that is, to train ourselves to love and desire the true good of man as ardently as we do the *immediate* or apparent good.

For Descartes, Spinoza, Leibniz, and even Hobbes, the key to happiness is knowledge of the nature of man and the universe. Most of our fears,

vanities, resentments, and hostilities would disappear if we knew the broad scheme of things of which our particular lives are illustrations. Thus Spinoza says (12):

The man who has properly understood that everything follows from the necessity of the divine nature, and comes to pass according to the eternal laws and rules of nature, will in truth discover nothing which is worthy of hatred, laughter, or contempt, nor will he pity anyone . . . But this I say expressly of the man who lives according to the guidance of reason. For he who is moved neither by reason nor pity to be of any service to others is properly called inhuman; for he seems to be unlike a man.

Can we rely upon knowledge to form or reform men's character? Or must our love and hate patterns be hammered into us from the outside? Is mental health achieved by knowing and living the truth? Is mental illness just a form of ignorance or self-deception? Is wickedness a kind of ignorance? These questions may help to reassure the student that, although the rationalists were primarily philosophers, the problems that engaged them were and are still major problems of psychology.

THE EMPIRICAL APPROACH

The rationalists believed there was a genuine objective truth about the world and about men that all men could apprehend. Either men were born with certain ideas or they were so constructed that they could not fail to see the truth of certain propositions once they had matured enough to be confronted with them.

In this section we shall have occasion to examine an approach to the understanding of human nature that denies self-evident truths. It prides itself on assuming nothing that cannot be identified in experience by all willing observers.

How much of our knowledge is innate?

How much of our knowledge is inborn? Certainly Plato and Aristotle already had faced this question. As usual, Plato gave the more picturesque answers; Aristotle, the more likely ones.

Plato—although how seriously it is hard to say—said that we have at birth a store of knowledge apprehended in a previous life or in a previous

incarnation (13). Unfortunately, we forget it all just as we are born into the new life. Accordingly, we have to learn everything anyway, but it is a kind of relearning.

Aristotle, on the other hand, equips the child with a full set of potentialities for experience of all kinds, but the experience itself has to come into being, that is, become actual through the action of our senses and our thought (14).

In general, St. Thomas Aquinas accepted the Aristotelian view of the matter, although about certain religious truths there would be differences of opinion as to what was inborn and what was not. By and large, however, it is safe to say that the main argument over innate ideas had to do with certain matters that everyone was supposed to believe. For example, that a straight line is the shortest distance between two points is something that everyone living in a three-dimensional world believes. It is, therefore, tempting to argue that all human beings are born with this idea and that it will be ready to pop out when the person arrives at a certain stage of development.

Against this whole notion of innate ideas John Locke (1632-1704) wrote (15):

Let us then suppose the mind to be, as we say, white paper, void of all characters, without any ideas; how comes it to be furnished? Whence comes it by that vast store which the busy and boundless fancy of man has painted on it with an almost endless variety? Whence has it all the materials of reason and knowledge? To this I answer in one word, from experience.

Do we have faculties?

Akin to the question of innate knowledge is the question of innate powers. Does man at birth have such powers as reasoning, perceiving, remembering, willing, imagining, and abstracting?

Because sooner or later all members of the human species do some reasoning, perceiving, remembering, and willing, it is natural for us, as we watch an infant who is doing none of these things, to say that he, nevertheless, has the *capacity for performing them*.

This sounds like common sense because, by and large, human infants grow into human adults and not into something else. Nevertheless, modern psychology is agreed that there are no faculties. Let us see if we can understand *why* this is said and what it means.

1. Does it mean that we cannot reason or imagine? Obviously not. Nor does it mean that the psychologist viewing the infant would deny that it is safe to predict that it will reason, imagine, remember, and so on, within a certain number of months or years.

Modern psychology says a good deal about capacity and even about aptitudes. It prides itself on rather good instruments for measuring some of these aptitudes: intelligence, for example, which is regarded as an aptitude for scholastic achievement.

2. Why, then, have psychologists stopped talking about the word "faculties"? Principally, because what the word stands for cannot be observed in experience. Examine your experience as long as you like, you will never find an act of remembering that is not the remembering of something specific. You remember your aunt's name and address, or your friend's telephone number, or that you owe him \$10. You do not remember in general.

But the search for innate bases of human experience has not been given up. Reflex actions such as sneezing and swallowing are regarded as unlearned behavior patterns. The concept of power or capacity has acquired new meaning with the studies of maturation, that is, the appearance of a behavior pattern after birth in all members of the species at about the same time after birth. Thus, if tadpoles which are anesthetized during the time when other tadpoles have a chance to learn to swim nevertheless begin to swim at the regular time, then we infer that the tadpole has a physical structure and a predetermined line of development so that, practice or not, he would swim when enough time had elapsed (16). Modern psychology has not given up innate designs for human development, but it has developed more precise methods for studying these designs.

What is the empirical method?

If we reject self-evident truths and faculties that we cannot observe, how do we study human experience? First of all, we can examine experience or samples of it and ask: What is it made up of? What are its ingredients and how are they put together?

Locke, Berkeley, and Hume. John Locke (1632-1704), Bishop George Berkeley (1685-1753), and David Hume (1711-76) were all empiricists, all philosophers, and all British. They are regarded as the founders of

British empiricism. All undertook to answer the questions raised in the previous paragraph.

All agreed that the unit of experience is a sense impression, a bit of experience that is stirred up in us by energy striking one of our sense organs. Copies of these original impressions could be kept in the form of images and combinations of images. These could be recalled later in memory. Their question took the form, therefore: Out of what impressions and images is any piece of experience compounded? And what could not be broken down and traced to sense impressions was to be regarded as something the mind combined on its own like a figment of the imagination. By applying this yardstick, they concluded that our ideas of cause, self, and substance had no foundation in sense experience and consequently, for all we could prove to the contrary, might be merely the products of our own imaginations.²

What is associationism?

Although Locke, Berkeley, and Hume were psychologists in the sense that all philosophers at that time were interested in psychological questions, they were first of all philosophers.

We shall, therefore, sample another group of writers more directly psychological in their interests but claiming to be thoroughly empirical in their approach and method. To understand what they were seeking or "driving at," let us envisage their task as follows: *What is the smallest*

² The trio did not agree on details, of course. Locke, for example, felt that size, shape, motion (what are called the *primary* qualities) were perceived by us because they were *in* the object. Colors, sounds, and flavors, however, were *secondary* qualities and somehow arose when energy from the object hit the sense organ and finished its journey through the nervous system. In other words, Locke would say that if I saw a cat moving, she really was moving, but if I saw the cat as orange, then I was talking about myself and not the cat.

This distinction both Berkeley and Hume rejected because they argued that we have to perceive motion, rest, size, and shape through a nervous system too, and who knows what distortions and contortions it contributes to our perceptions of size, shape, and motion.

Furthermore, in Locke (17) there is talk of *a mind* that reflects on what is experienced:

"... the mind clearly and infallibly perceives each idea to agree with itself, and to be what it is; and all distinct ideas to disagree, i.e., the one not to be the other; and this it does without pains, labour, or deduction; but at first view, by its natural power of perception and distinction."

Berkeley also assumes that there is a self that *has* experience and organizes it. Of this we cannot be so sure in Hume.

number of elements and operations that we need in order to name and explain any kind of human experience whatsoever?

From time to time we have mentioned feelings, emotions, thoughts, memories, imaginations, and acts of will. Can all these types of experience be reduced to a small number of elements, such as sense impressions and, let us say, feelings of pleasantness and unpleasantness? If so, how do they combine to give us the subtle and complicated experience with which we are so familiar? The approach that says that any experience is a set of elements combined according to certain principles we shall call associationism or associationalism.

Although historians credit David Hartley (1705-57) with being the formulator of associationism as a psychological system (18), we shall examine this doctrine in the form given to it somewhat later by James Mill (1773-1836) (19).

James Mill. Mill begins with the "most simple" elements, namely, the feelings we experience when our external organs of sense are stimulated. In addition to the five standard senses, he adds the muscle sensations, those in the alimentary canal, and the sensation of disorganization.

Ideas are what are left when what gives rise to a sensation is taken away. Notice that we do not need a mind to *manufacture* the idea of an orange; it is what is left when we take the orange out of range of your eyes. Simple feelings and their laws of association can explain or try to explain everything. A self or special faculties of any kind are not needed.

Says Mill (20), for example:

Some of the most familiar objects with which we are acquainted furnish instances of these unions of complex and duplex ideas.

Brick is one complex idea, mortar is another complex idea; these ideas, with ideas of position and quantity, compose my idea of a wall. My idea of a plank is a complex idea, my idea of a rafter is a complex idea, my idea of a nail is a complex idea.

These, united with the same ideas of position and quantity, compose my duplex idea of a floor . . .

How was associationism attacked?

The proud claims of the associationists that they could get along without a self or a central director of experience did not sit well with many thinkers.

1. Some believed that, if one really did look into his experience, one *would* find the self, just as one would find sensations of color or perfume.³

2. Others tried to show that association was the way the elements of our experience did get united, but that it needed a mind to take charge of the associating process.⁴

3. Immanuel Kant (1724-1804) was no more a psychologist than was David Hume. But just as Hume set psychologists to work for centuries, so did Kant when he tried to answer Hume. His answer in highly oversimplified form was: True, you can't find the self, cause, or substance among your sense impressions. But you can't even have the sensation of redness without already having located it in some space at some time and without referring it to some particular stream of personal experience. In other words, he was saying: You cannot find the self in experience, but you cannot have any experience without a self.

4. Others, particularly Johann Friedrich Herbart (1776-1841), were impressed with the dynamic activity that pervades human experience. Why, Herbart asked, do the elements of our experience push into consciousness and get pushed out again? Why do some of them huddle in clusters? Why are some new ideas welcomed into these clusters, and why are some repelled? His answer was that ideas have energy within themselves and that, like all things, they strive to persist and force their way into consciousness. More powerful ideas may, however, push them beneath consciousness. Some of these ideas unite to form a powerful mass and they dominate our conscious life, pushing their way more and more frequently into consciousness. These masses are habit systems built up out of experience. The incorporation of a new bit of experience into one of these clusters Herbart called "apperception" and the cluster that did the incorporating was called the "apperceptive mass" (24).

5. Among the critics were also the physiologists, who argued that if we turned our attention to what went on inside the human body when we are

³ For example, Thomas Reid (1710-96), the founder of the so-called Scottish school. This school contained a group of influential thinkers and writers, many of whom exerted no small influence on the kind of psychology that was taught for a long time in our American universities. This is pointed out in interesting detail by Roback (21).

⁴ For example, Thomas Brown (1778-1820), who noted: "I perceive, for example, a horse and a sheep at the same moment. The perception of the two is followed . . . by the feeling of their agreement in some respect, or their disagreement in certain other respects" (22). In other words, it takes a mind to note these agreements and disagreements. Association itself does not force these judgments upon us.

J. S. Mill, a son of James Mill, also complained about the lack of activity in the associationists' description of mind, as did others (23).

having experience we could find out something useful about the whole matter.

Even the ancients knew that something went on in the body during conscious experience, but they had no means of finding out just what did go on. Psychology had to wait for improved means of dissecting the body and for microscopes wherewith to examine its invisible divisions before progress could be made.

Throughout the nineteenth century work went on in the study of the brain, the nervous system, the special sense organs, the vascular system, and everything else that could have anything to do with human behavior.

a. In the first place, chemistry through Black, Priestley, and Lavoisier cleared up the problem of breathing that had so fascinated the ancients. Then physiology tackled the problem: Which part of the body takes part in which type of conscious experience?

b. By the method of extirpation, that is, cutting out certain sections of the brains of animals, and by studying the effects on behavior of certain types of brain injury, knowledge was gradually built up about what parts of the brain were related to certain types of experience.⁵

c. The issue that was not decided (and is not yet wholly decided) was whether each activity had its own separate little home in the brain or whether, in addition to providing separate rooms for all its inmates, so to speak, the brain also acted as a unit, that is, provided a general assembly hall for all its tenants (25).

d. Electrical stimulation of the brain and, more recently, the study of electrical currents in the brain have opened up new ways of improving our knowledge of the way the brain operates in experience. The promise, however, has yet to be realized (26).

e. How each sense organ is constructed and how it receives and transmits its energy is another topic for the physiologists, and in this area, too, great strides have been made.

f. There is the study of the nervous system itself. How is nervous energy created and transmitted along the nerve fibers? How does energy go from one fiber to another? Does a fiber transmit all kinds or only one kind of energy? (27)

⁵ Franz Joseph Gall, the founder of phrenology in the early part of the nineteenth century, did not get far with the theory that bumps on the skull indicated the extent of the powers of the brain beneath it. Nevertheless, that part of Gall's theory which argued that various human powers had a special home in some part of the brain (localization) was more fruitful.

g. In addition, we know more and more exactly what takes place in the blood stream and the internal organs when we have emotions. We can now talk with considerable confidence about what goes on in the body when we have sensations and emotions. We still know little of what goes on in the body when we are reasoning or creating a good story to excuse our absence from work or school.

Physiology is important for psychology, not only to understand behavior but also to help those whose behavior has gone awry. The more closely we can connect abnormalities in experience with abnormalities in the body the more likely we are to be able to do something about correcting the experience. Hence medicine has always been a co-worker in psychology and has contributed enormously to it.

We shall see, however, in the following chapter to what extent these physiological findings helped (a) develop the search for elements and (b) how they paved the way for Behaviorism—one of the most vigorous opponents of this search.

h. The evolutionary thinkers, particularly Spencer and Darwin, also helped to undermine the associationists. The notion that the human mind was the result of a long line of development in which it demonstrated its power to help the human organism survive made a big difference to psychology.

Instead of asking: Out of what elements is our experience made up? And what are the laws that bind the ingredients together? the evolutionist is likely to ask: How did our ability to sense, remember, and think originate? What happened in the struggle for survival that put a premium on the ability to think with symbols? How are these powers connected with the group's fight with the environment in human history?

These are *genetic* questions because they ask about origins and developments, gradual or sudden. They are quite different from the questions asked by the associationist. It takes a different kind of investigation to answer them. It carries scholars into distant lands to find primitive peoples who are at different stages of development. In differences in customs and usages it finds clues to differences in mind and experience. Finally, it finds in the animal mind a possible clue to the human mind. Thus social psychology and comparative (animal) psychology and child development all got great impetus from the evolutionary impact on psychology. We shall also see that asking what a piece of human behavior does for the individual's fight to adjust gave rise to Functionalism, an important movement in modern psychology.

SUMMARY

In this chapter we turned from the ancients' ventures in psychology to the beginnings of scientific psychology. Not that psychology became scientific all at once, but simply that during the seventeenth, eighteenth, and nineteenth centuries thinkers became more and more conscious of trying to make psychology into a science by modeling it after some of the natural sciences, like physics, astronomy, chemistry, and mathematics.

We then examined the rationalistic approach to our great themes of psychology to see how that method operated in the hands of such men as Descartes, Spinoza, Hobbes, and Leibniz.

Next we sampled the empirical approach from Locke, Berkeley, and Hume through the more specifically psychological works of James Mill and others.

Finally, we noted the criticism of the methods and the results of the whole associationistic school by men like Reid, Brown, J. S. Mill, Kant, Herbart, the physiologists, and the evolutionists.

We did not try to be historically complete. For that you should read a history of psychology. It is hoped that what history was introduced will help make the views and the criticism of them understandable.

Our next step will be to see what all these views and criticisms amounted to for the development of psychology as we have come to know it in our time.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: Herbart's steps of learning and teaching

Assignment: Look up in a textbook on the history of education or on methods of teaching what are known as Herbart's five steps of teaching.

Questions for Class Discussion

1. These steps are no longer mentioned very much. Do you think they are outmoded?
2. For the teaching of what type of material do you think these steps are best suited?
3. Why did these steps enjoy such a wide use and popularity in the training of teachers in this country?
4. If you followed these steps strictly, could you really teach a lesson poorly?

PSYCHOLOGY for General Education
PROJECT II

Topic: Psychology and methods of science

Assignment: Read W. L. Valentine and D. D. Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart and Co., 1949), pp. 1-18.

Questions for Class Discussion

1. What made Gall's theory plausible?
2. Why do people attribute different character traits to blondes and brunettes?
3. What procedures were used to test the theories in 1 and 2 above?
4. Can you formulate some statement about what makes a procedure "scientific"?

PROJECT III

Topic: Psychology in America during the eighteenth and nineteenth centuries

Assignment: Read Chaps. 4-7 in A. A. Roback, *History of American Psychology* (New York: Library Publishers, 1952).

Written Work to Prepare

1. Make an estimate of the influence of the Scottish school on American psychology.
2. List some of the textbooks that were being used at that time.
3. Indicate the influence of British empiricism on American psychology.
4. Compare the contents of these early textbooks (as described by Roback) with the text you are using and with a few others that you can locate in your library. What outstanding similarities and differences do you note?

RECOMMENDED READINGS

- BORING, EDWIN G. *A History of Experimental Psychology*. New York: Century Co., 1929, Chap. 1.
- DENNIS, WAYNE. *Readings in Psychology*. New York: Appleton-Century-Crofts, 1948, Selections No. 4-6, 8-18.
- MURPHY, GARDNER. *Historical Introduction to Modern Psychology*. Rev. ed. New York: Harcourt, Brace and Co., 1951, Chaps. 2-4.
- RAND, BENJAMIN. *The Classical Psychologists*. Boston: Houghton Mifflin Co., 1912, Chaps. XIII-XVI, XVIII-XXI, XXIV-XXVI, XXX,

XXXV. (These are samples from writings of Descartes, Hobbes, Hartley, and others of the period.)

ROBACK, A. A. *History of American Psychology*. New York: Library Publishers, 1952, Chaps. 4, 6, 7.

VALENTINE, W. L., and WICKENS, D. D. *Experimental Foundations of General Psychology*. 3rd ed. New York: Rinehart and Co., 1949, Chaps. 1-3.

WHITEHEAD, ALFRED N. *Science and the Modern World*. New York: Macmillan Co., 1925, Chap. 2.

tation for scientific method. One is that to experiment means the ability to control certain factors. The other is that the more precisely we can measure the factors with which we are experimenting the more useful is the knowledge we gain.

Applying these remarks to psychology, we may say that the key to making psychology a science lies in finding some way to experiment with psychological factors and to measure the factors with which we are to experiment. Can we experiment with human experience? Can it be quantified?

Can we repeat psychological experiments?

For example, David Hume tells us that whenever he looks into his experience he fails to find any sense impression of the self. Suppose you wish to repeat this experiment. Can you look into Hume's experience? No, you demur, but you can look into your own. Suppose five of us do just that. Suppose three of us say, "Yes, Hume was right—no self." The other two, however, find the self. Shall we now take a vote on the matter? Or shall we get more people to make the experiment or only certain kinds of people? Suppose we ask the pair who found the self if what they found was the same self in both cases?

Can we have a single variable?

In addition to being unrepeatable, human experience is unbelievably complex. This means that many factors are operating simultaneously. A scientific experiment requires, however, that all factors save one be kept constant. If we are trying to find out the effect of a money reward on industrial workers' output, we have to find some way of keeping the effects of his home life, length of experience on the job, his relations with other workers, and many other variables out of the picture. But it is impossible to suspend all these other influences while we experiment with the effect of money rewards. And it is difficult to find two groups of workers that differ *only* in the money rewards they are receiving for their work, and it is not much easier to contrive two such groups.

Modern experimental psychology has not solved these problems, but it has refined its methods so that it can approximate more and more the ideal conditions for a scientific experiment.

Can we quantify experience?

To be scientific in the fullest sense of the word, psychology had to find some unit that could be utilized for measuring or quantifying experience. How do we measure a physical object? We lay one end of it alongside a ruler marked off into equal divisions, and note the division on the ruler with which the other end coincides. Or we put an object on a platform and let gravity pull it toward the center of the earth. We note how far this depresses the platform, and we thus have a measure of its weight.

But we cannot lay our experiences alongside any yardstick or put them on platforms to be weighed. The problem, therefore, was to find something in human experience that could be measured and expressed in *units* that we could count.

The remainder of this chapter is devoted to sketching out the various attempts made by the late nineteenth- and early twentieth-century psychologists to find ways of dealing with psychological problems experimentally and precisely.

Weber's law. In 1834 Ernst Heinrich Weber (1795-1878), in writing about his experiments, reported that if we are comparing two weights, one of 30 and one of 29 half-ounces, the difference between them is not more easily perceived than that between weights of 30 and 29 drachmas. Weber found this to be true also when he compared lines of different lengths. In 1860 Gustav Theodor Fechner (1801-87) elaborated and stated what he called Weber's law,¹ or roughly that it takes a certain proportion of the weight, length, size of an object (rather than any fixed amount) to enable us to detect any difference in its weight, length, size.

¹ The magnitude of the sensation is not proportional to the absolute value of the stimulus, but rather to the logarithm of the magnitude of the stimulus, when this last is expressed in terms of its threshold value, that is, that magnitude considered as a unit at which the sensation begins and disappears (1).

Or, as Fechner put it: Suppose you are judging two weights called *a* and *b*, such that you can tell a difference between them only if one is at least 1/10th greater than the other.

Suppose *a* is 10 units; if *b* is 11 units, then *b* is noted as greater than *a*. The logarithm of 10 is 1.0 and the logarithm of 11 is 1.0413.

Suppose *a* is 100 units; if *b* is 110 units, then *b* is noted as greater than *a*. Now the logarithm of 100 is 2.0 and the logarithm of 110 is 2.0413.

We could repeat this with 1,000 and 1,100, and here again it would take just 1/10th of the original stimulus to give us a just noticeable difference (j.n.d.). Fechner saw that no matter what the absolute sizes of *a* and *b* were (10, 100, or 1,000), the amount needed to give a j.n.d. (1, 10, 100) expressed in logarithms was always

In other words, the just noticeable difference (j.n.d.) is proportional to the size of the original stimulus.

Weber had hit upon a unit for measuring human experience. We cannot measure a man's sensation of heaviness or his sensation of the length of a line because it is unlikely that such experiences have either length or weight themselves. But we can measure the weights of the two objects we ask him to lift, and we can arrive at the just noticeable difference (j.n.d.), that is, the amount or proportion needed to make him experience a difference.

And when the relation between the intensity of a sensation and the intensity of a stimulus can be described by a mathematical expression, for example, a is to b as $\log a$ is to $\log b$, then we have fulfilled the requirements of scientific method.

This method of measurement hastened the introduction of experimental methods into psychology and was the beginning of that type of psychological study called psychophysics.

Speed of nerve impulse. The ancients had shrewdly guessed that stimuli were shunted through the body from sense organs to muscles via certain routes. At first they thought of these routes as ducts or channels along which coursed the animal spirits. By the middle of the nineteenth century it was known that energy was transmitted along nerve fibers, but it was believed that the messages sped along the nerve paths at such high speeds that thought and the reaction to it were regarded as virtually simultaneous.

Hermann von Helmholtz (1821-94) actually measured the speed of the nervous impulse both in a frog and in a man (2). He found the speed to be 90 feet per second for the motor nerves of a frog and from 50 to 100 feet per second for the sensory nerves of a man. This information could be verified by repeating the experiment or by setting up others like it.

The time it takes for an organism to react to a stimulus becomes important in highly mechanized civilizations. Our very lives depend on how quickly we respond to flashes of light, sounds of horns and whistles. Experiments on reaction time have, therefore, quite understandably given psychology some of its clearest and most dependable results.

The effect of the complexity of the task, age, altitude, body temperature, dietary conditions, motivation, and radial acceleration on reaction time has been studied and measured (3). (Cf. Chap. 1.)

Memory. Let us take a somewhat different example to show how quan-

tification and repeatability turned observation and logical thinking into a scientific experiment.

Hermann Ebbinghaus (1850-1909), a German psychologist, was influenced by the work of Fechner to attempt the measurement of a higher mental process such as memory. Now, the phenomena of memory were familiar to the ancients and they had been discussed for centuries. How did Ebbinghaus's work differ from all this?

Common observation had made it clear that how well one remembered depended on how well the material had been learned, the way it was learned, and the time that had elapsed since the learning took place. Ebbinghaus set out to measure the effect of these various factors. In the first place, he needed a unit to measure the amount of learning. For this he chose the repetition of the material as a unit. The number of times a poem was repeated could be counted and recorded.

Next, the number of symbols making up each unit also could be counted. Thus the letters in each word, the words, the repetitions, and the words recalled could all be expressed in numbers.

Since he wanted to measure the effect of repetition on memory of various units of different length, he had to get rid of the effect of familiarity with the material. The subject who had become familiar with a stanza of *Evangeline* already had the benefit of a number of repetitions. Nor did he want the varying interests of different people in different materials to get in the way. Consequently, he had to devise nonsense syllables that no sensible person would have had an occasion to study and in which he would certainly have no interest.

In this way Ebbinghaus, using himself as a subject for over five years, performed experiments on learning and forgetting that could be repeated by other experimenters. These findings are still classic in the field of both memory and experimental psychology (4) (see Chap. 10).

Galton and Binet. Still another important step in the study of human behavior was taken by Francis Galton when he applied statistical methods to the study of individual differences in the traits of men. Today we often express a person's ability, height, weight, or tendency to vote in a presidential election as being so many units above or below the average for the population as a whole. This is possible because these traits and many others are distributed among the individuals making up the large group in a certain pattern called the normal curve of distribution, or the curve of normal probability (Fig. 1).

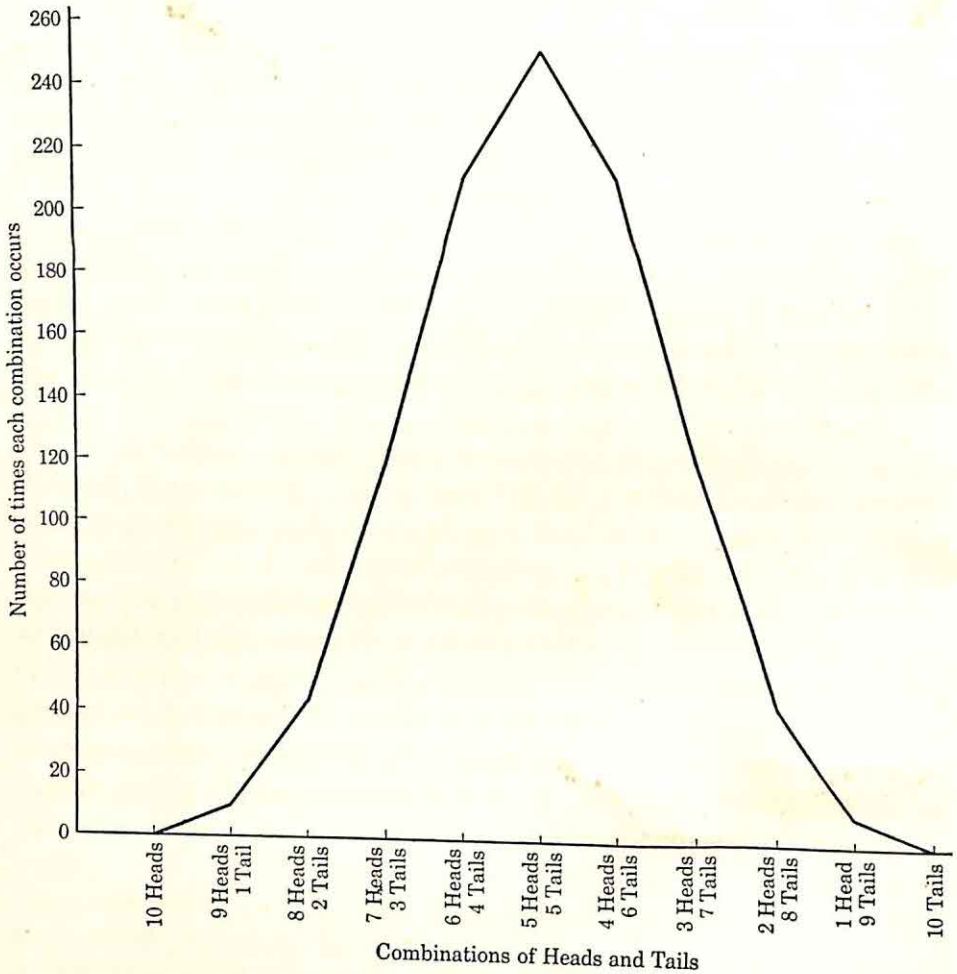


FIGURE I

The way height, weight, length of life, and many other characteristics are distributed approximates the way pennies will fall with respect to the number of heads and tails that will show on each toss. The diagram above shows that if we toss 10 pennies at one time for 1,000 or more times, we shall get combinations of 5 heads and 5 tails about 250 times but 10 heads or 10 tails only once. Because theoretically we can calculate exactly $(H + T)^{10}$ from the shape of the curve how many times each combination should occur, we call the curve the curve of normal probability. Actual distribution of height or weight only approximates this curve, but very closely.

It was Galton also who first used the questionnaire extensively to get data for psychological study. By the questionnaire we can get (if our respondents are cooperative) objective data about opinions, preferences, and attitudes. What our respondent writes down as an answer to our question is as objective and enduring as an inkmark can be. Of course, we assume that the respondent understands the question, knows what he is putting down, and is not telling any lies in doing so.

As a final example, let us look at the way Alfred Binet (1857-1911) and Théophile Simon (1873-) quantified the notion of intelligence. For centuries it was an open secret that some people were brighter than others, but it was not until Simon and Binet found a unit for measuring differences in intelligence that the great flood of research on that subject was released.

The unit they hit upon was mental age (MA). By establishing certain tasks as being appropriate for the average four-year-old, 4½-year-old, five-year-old, and so on, they could, by seeing how many tests a child passed, give him a mental age. William Stern divided this mental age by the chronological age to give us the Intelligence Quotient (IQ) or the rate at which the testee is improving his score on an intelligence test as his calendar age increases (cf. Chap. 10).

There is no doubt whatever that the discovery of the unit of mental age made all the difference in the world in what psychologists could do about the experimental study of intelligence. Educational psychology, of course, could scarcely exist without such research.

STRUCTURALISM

Weber and Fechner provided a method of measuring the inner side of human experience, and Wilhelm Wundt (1832-1908), a German psychologist, established the first psychological laboratory in Leipzig in 1879. His book, *Principles of Physiological Psychology*, came out in 1872 and outlined the new psychological science.

What is introspection as a method?

Wundt realized, as did everyone else who hoped to make psychology a science, that everything depended on making the individual's report about what he was experiencing *objective*. If one claims that there are peaches

and apples growing on one tree, those who doubt it can go and see for themselves. A physical object is a public object. By comparing observations we arrive roughly at what we all agree upon. This is so because we cannot conceive that all the observers should have trouble with their eyes at the same time and in precisely the same way.

But when I ask you to describe your toothache or the experience you have when a snake is suddenly thrust under your nose, you cannot take out your experience and let me look at it. As a matter of fact, can you yourself look at it twice? For one thing, when the snake is under your nose you are not concerned with making an accurate report about it to the experimenter. Should the experimenter tell you that he will swish the reptile in front of you, then you may either decide to quit the experiment before it is too late or you may not be properly scared. In either case, the experimenter would not get a proper report.

Accordingly, Wundt insisted that *introspection*, or looking inwardly at one's experience, should not be a hit-or-miss affair. Wundt insisted that the subject of the experiment must be trained to observe and to report on his experience. And he would not be asked just to observe, but to observe a stimulus that the experimenter controls very carefully. For example, suppose as you are reading this book you are asked to note the kind of experience you are having. You might say, "Well, I'm looking at this page in the book." "Anything else?" the experimenter prods. You reply that now, come to think of it, you feel tired of reading and maybe you'd rather listen to the radio or go for a walk or take a bath.

But suppose the experimenter puts one line of print in a slot that is brightly illuminated and asks you to compare it with another line exposed beside it. Suppose he asks which seems larger, darker, clearer. Suppose he asks you to report when you feel strain around the eyes, when you no longer can bear to look at the print, when the image on the right becomes invisible. Under these conditions and with these instructions, we might expect that you could give more precise, more reliable, more accurate reports. It might even be the case that twenty observers put through the same set of experiments might give us reports that substantially agreed.

The training of subjects to introspect and the refinement of the methods for observing and reporting; careful control of the stimulus—these were to be the characteristics of the psychological laboratory both in Germany and in the United States for the next three decades.

What was the goal of the Structuralists?

The school of psychology established by Wundt has been called Structuralism or, less frequently, Existentialism. What was it after, with its newly found apparatus, its batteries of introspectors, and its eager students who came from many countries to study with Wundt?

The answer was perhaps best given by Edward Bradford Titchener (1867-1927) (5), one of Wundt's students who for many years was the high priest of American psychology at Cornell University.

The primary aim of the experimental psychologist has been to analyze the structure of the mind; to ravel out the elemental processes from the range of consciousness, or (if we may change the metaphor) to isolate the constituents in the given conscious formation . . .

We are back, as you can see, with the associationists, with the thinkers who regarded experience as made up out of simple elements pretty much as elements form compounds in chemistry. The difference is that now the search for elements goes on in laboratories under carefully controlled conditions, that is, experimentally, instead of in armchairs—where, we are told, nonexperimental psychologists and philosophers are wont to spend their lives.

In 1898 Titchener (5) reported:

It seems safe, then, to conclude that the ultimate processes are two, and two only, sensations and affections, though we must not forget that the first class, that of sensations, includes the two well-defined sub-species, "sensations" and "ideas."

It was objected almost from the first that when we ordinary people look into our experience we do not find sensations or simple feelings floating around in a suspension. But Titchener (5) forestalls this criticism by saying:

. . . the "elements" of the experimentalists, as they themselves have been the first to urge, are artifacts, abstractions, usefully isolated for scientific ends, but not found in experience save as connected with their like.

Wundt's influence spread all over the world, and especially to America. G. Stanley Hall returned to the United States in 1881 and in 1883 founded the psychological laboratory at Johns Hopkins University. Among his students he numbered Dewey, Cattell, Sanford, Donaldson, and

Jastrow. In 1888 he became president of Clark University and made that institution the headquarters for research in psychology.

Why did Structuralism fail to prosper?

Not everybody in the psychological world was happy about the "experimental" work being carried on in dozens of laboratories. William James, believed by some to have founded the first "unofficial" psychological laboratory at Harvard University even before Wundt established his, found the whole business—the experimentation and literature written about it—extraordinarily dull.

Others distrusted the method. Still others disagreed with what the method discovered. These protests were destined to become seeds for new psychological schools and labels, but before going into these we can perhaps see for ourselves why Structuralism was a precise and methodical way of getting nowhere—or rather nowhere that anyone wanted to go.

What the structuralists were doing has been compared to the work of the chemist in analyzing compounds into elements or to the work of the anatomist who dissects the body to discover what parts make it up and how they are connected.

No one denies that chemistry and anatomy have prospered. Why not this type of psychology?

Why can we not do something spectacular and useful with the volumes and volumes of information produced by the structuralists on sensations, images, their combinations, and so on? Since happiness is what all men seek and misery what they all avoid, is it not reasonable to ask the psychologist: What is happiness made of, and how can we produce it? What is misery made of, and how can we avoid it?

In general, the structuralists did less with feeling, emotion, and action than with sensation and ideas. That in itself gives a hint as to the limitations of the program. But there is a more important one.

Suppose Mr. X arrives at the psychologist's office and says, "Professor Q, I feel miserable; I feel as if the world is about to collapse."

If Professor Q is a good structuralist, he knows that Mr. X has a state of consciousness that can be broken down into sensations a, b, c, each of which has a certain intensity, extensity, clearness, and so on, certain feelings of unpleasantness, plus certain images that keep cropping out of past experiences.

Suppose Professor Q puts Mr. X through an intensive introspection and gets a precise analysis of Mr. X's state of mind. He gives him this in written form and possibly charges him a fee. The analysis proves to Mr. X beyond doubt that he is in a miserable frame of mind. That is like being told by the dentist that you have a toothache.

This brings us to the central difficulty in using the analytic approach. Chemists can put their elements together *almost at will*. They can make new products. But human experience cannot be compounded like medicines out of elements stored in separate bottles.

Consequently, the change and control of behavior were pretty far in the background of the structuralist thinking. They returned to the foreground of psychological thinking when later the behaviorists made them the starting points of a new approach.

On the positive side, Structuralism made experimenting in psychology not only fashionable but indispensable for academic respectability. It helped establish psychology as a separate science with its own section in college catalogues. It helped develop instruments, apparatus, procedures, and ideals of systematic precision that have left their mark on the field.

FUNCTIONALISM

Functionalism is the name given not so much to a school of psychologists as to certain emphases in psychology. It was one of the protests against Structuralism and had considerable influence on the development of psychology in this country.

If not elements, then what?

As far back as Aristotle there was the conviction that human behavior could not be understood without considering why it was undertaken. In other words, every piece of behavior, on this view, has a function to perform in protecting the organism or in some way furthering its interests and welfare. Again and again we find returning to psychology the assertion that there is a *self that is acting*, and that it acts for a reason or a purpose a good deal of the time.²

² Thus Franz Brentano in 1847 published *Psychologie vom empirischen Standpunkte*, a book that was influential in its day as the foundation of *act* psychology. In James Ward we have the concepts of activity and the unity of the self powerfully urged in his article on psychology in the ninth edition of *Encyclopaedia Britannica* (1886). This obtained a wider audience through G. F. Stout's *Analytical Psychology* (1896) and his *Manual of Psychology* (1898).

Functional psychology stresses mental *processes* rather than elements, that is, the mind in action. We have to begin, according to William James, not with elements but with the flow of conscious life itself in all its richness and muddiness as well as in its more lucid and orderly movements.

But the functionalist realized that if we merely *describe* processes we shall be doing with them what the structuralist did with elements.

No, what was needed to give the functional approach a new twist or perhaps a very old one was to ask: What do we think *for*, feel *for*, reason *for*? What is the *meaning* of our behavior?

The old answer was that the self had a destiny and structure that propelled it in a certain direction by means of desire and reason. The new twist for the functionalist was to interpret the meaning of our actions in terms of adjustment to the environment; an enterprise in which the world and all its organisms have been engaged since their arrival on the planet. Thus the doctrine of evolution as preached by Spencer and demonstrated by Darwin found its way into psychology.

What are the survival values of human nature?

Evolution, however, is not something we can see unfolding before our eyes. Hence introspection is no way to find out how we evolved. How do we find out? Presumably the answer is in the history of man's struggle for survival. This study of the history of man to discover why and how he has developed his present forms of behavior we call genetic psychology. If we could show, for example, that at one time organisms with distance receptors that could distinguish colors survived in an environment that killed off those without such receptors, we would have shown the significance of color vision for survival. On this view, the ability to think in syllogisms and to write poetry must at one time have had a survival value and perhaps quite different from the ones they have today.

This kind of search quite naturally led to the study of animals because in animals extensive learning has not obscured the simpler mechanisms of heredity, natural selection, and survival. Hence Functionalism is favorable to animal psychology (comparative psychology).

Furthermore, because adjustment to an environment is both physical

and mental, that is, it is a unitary act, the functionalists were reluctant to separate conscious activity from bodily activity.³

The emphasis of the functionalists on the *significance* of human behavior gave impetus to the search for instincts and purposes in explaining behavior.⁴

BEHAVIORISM

As has been pointed out, the enthusiasm for Darwinian evolution that swept over the Western world as the nineteenth century was closing created an interest in animal psychology.

Edward Thorndike studied the learning behavior of cats in a cage and Robert M. Yerkes studied the behavior of many animals, including chimpanzees. These men and others learned a good deal about the psychology of animals without asking the animal what was going on in its consciousness.

John B. Watson, another experimenter in animal psychology at the turn of the century, suggested that human beings also could be studied without asking them what was going on in their consciousness. In other words, Watson was urging the abandonment of introspection as a method of getting materials for psychologists to study. This is what Watson (10) thought that Structural psychology had contributed:

. . . All that introspective psychology has been able to contribute is the assertion that mental states are made up of several thousand irreducible units; for example, the thousands of sensation units like redness, greenness, coldness, warmth, and the like, and their ghosts called images, and the affective irreducibles, pleasantness and unpleasantness (possibly six of the latter if we include strain and relaxation and excitement and calm).

Watson went further. He pointed out that the reports furnished by

³ Dewey, in criticizing the reflex arc concept, says:

"More specifically, what is wanted is that sensory stimulus, central connection, and motor responses shall be viewed, not as separate and complete entities in themselves, but as divisions of labor, functioning factors, within the single concrete whole, now designated the reflex arc" (6).

Similarly, James, in trying to explain the emotions, reduced them to our awareness of the bodily disturbances that occur within us when we perceive something that threatens us with great evil or promises great good. This was the basis of the famous theory credited to James and to C. G. Lange (7).

⁴ Especially by William McDougall in the first quarter of the twentieth century, but also by Tolman (8). Behaviorism in the person of Clark Hull made one of its most notable theoretical efforts in trying to account for goal-seeking behavior (9).

introspection were not objective and that the method was hindering the science of psychology instead of helping it. He proposed, therefore, to put the experimental subject in a situation to which he had to respond by some act that could be *observed* by anyone who cared to do so.

Thus, if you press the point of a pin into the subject's arm, he will move the arm and maybe say something. If you keep track of the stimulus and his response, you do not need to ask him what went on in his *consciousness between times*. As a matter of policy, one does not even have to assume that there is a consciousness in which anything is going on.

What is the method of Behaviorism?

As a method of studying human behavior, this certainly is different from both the speculations of the ancients, logical and shrewd as they almost always were, and from the experiments of the structuralists.

Not only could it be used with animals, it could also be used on children, mentally defective and emotionally disturbed people, none of whom could introspect very well. Above all, it did away with the need for highly trained introspectionists.

So valuable is this method that psychologists use it whenever possible. Experiments are designed so that the responses can be seen, photographed, or registered on a revolving drum or on some other device that provides a permanent record.

Of course, Watson included in "behavior" the speech of human beings as well as the big muscle movements. Thinking is for him "subvocal talking," or very slight muscle movements in the speech organs.⁵

If one includes speech in behavior, much of the daring and novelty of the method are lost. If I stick a pin into you and you say "Ouch," your response, so far as I am concerned, is not the muscle movements in your throat and tongue when you say "Ouch." It is, rather, the *meaning* of the "Ouch."

Incidentally, what does meaning "mean" for the behaviorist? It means

⁵ Are speech and thought identical? There is strong evidence that some muscle movements accompany all thought. The electrical action currents of the right arm clearly indicated that they were correlated with imagining lifting a 10-pound weight with that arm (11). But the movements accompanying thought are likely to be much reduced from those used in normal speech. They are, therefore, never identical with thought, and whether they cause thinking or are caused by it is impossible to say.

everything that the object as a stimulus calls forth from you by way of organized response. If x has the same meaning for me as y , it will call forth the same responses. This is a little odd because the same four-legged barking animal may call forth from one man the response "good dog," and from another, "bon chien." If I call a certain object "good dog" and a Frenchman calls the same object "bon chien," do we *mean* something different? The organized muscle patterns are different for the two expressions. If their meaning is the same, meaning cannot be identical with the pattern of muscle movements.

How is Behaviorism related to Reflexology?

Behaviorism might have remained nothing more than an experimental method had not another doctrine called Reflexology been developing in Russia at about the same time.

Dogs usually catch their breath when cold stimuli are suddenly applied to their bodies. This is a reflex, that is, it occurs automatically without any deliberation on the dog's part. We are born with many of these reflexes, and since some of our most vital functions, like breathing, sneezing, coughing, depend in part on them, it is rather fortunate that we do not have to make decisions about them (cf. Chap. 5).

In the early years of the century Russian physiologists found that if another stimulus is applied at the same time as the cold stimulus and this is done several times, the new stimulus will produce the same catching of the breath as did the application of the cold.⁶

Bechterev called this discovery the "associated reflex." But even before this another Russian, I. P. Pavlov, noted the same thing in his work with dogs and called it the "conditional reflex."

What Pavlov and others could teach dogs to do was both wonderful and frightening. Let us see why (see also Chap. 11).

Pavlov first sounded a bell as the dog was being offered meat or meat powder. Dogs naturally, that is, without learning, secrete saliva when food is placed in the mouth. After a while the dog would salivate when the bell was rung, whether there was food or not. But practically any stimulus, when used like the bell, could turn the trick. In other words,

⁶ In 1907 Bechterev wrote a book called *Objective Psychology* which, according to Flügel, "should be regarded as the first systematic exposition of behaviorism" (12). Gardner Murphy points out that Loeb described the conditioned reflex in 1900 and Hobbes and Locke even before that (13).

almost anything could become associated with any reflex and elicit it after a sufficient number of repetitions. Is it any wonder, therefore, that so much of our own behavior is so incomprehensible to us or to anyone else? Suppose when you were very young your father or an older brother became angry while you were eating spinach. This frightened you. Might you not thereafter be frightened at the sight of spinach?

But if haphazard conditioning is frightening, deliberate conditioning of reflexes or conditioning of responses has great possibilities for both good and evil. Pavlov could train dogs to salivate at a precise time after the bell had been rung (15 or 20 seconds). If food is given in connection with only one pitch of a sound, the dog will respond to that pitch and no other. In other words, rather unintelligent animals can be taught to make remarkable discriminations by the method of conditioning.

Think of what a government with complete control of all means of mass communication can do to condition a people to feel, think, act *as it wishes them to!*

This conditioned reflex gave Behaviorism another powerful string to its bow. It provided a theory with which to account for learning (see, further, Chap. 11).

In later developments the conditioning method of Pavlov came to be known as *classical* conditioning. Conditioning is used also to describe certain other types of learning:

1. A rat runs to the left and finds food (positive reinforcement); runs right and gets electric shock (negative reinforcement).

2. A rat runs left and gets food. When he runs to the right and nothing happens, the rat comes to regard the right turn as equivalent to the shock or disappointment (14).

More complicated behaviors, including the learning of language meanings, also are described by conditioning. Thus, according to Mowrer (15), the meaning of a predicate is transferred by conditioning to the meaning of a subject. For example, the meaning "thief" is attached to the meaning "Tom" in the sentence "Tom is a thief."

What is Behaviorism as a theory?

As a theory, Behaviorism held that all human behavior was built up out of units called reflexes (unlearned automatic responses) by a process called conditioning. Watson argued, for example, that there were three

fundamental emotional responses: love, fear, and rage. These he observed in newly born infants, presumably before they had a chance to pick up these behaviors from their surroundings. And these were evoked by a few specific stimuli, such as being dropped suddenly, having their movements constrained, tickling, and stroking. If this is our emotional repertoire at birth, how do we acquire the complex and bewilderingly subtle emotional life of adulthood?

Watson answers that it comes about by the conditioning of these three basic emotional response patterns. Dogs will not frighten the child, but a dog plus a frightened mother may lead to fear of the dog (16).⁷

Watson's banishment of consciousness and mind from psychology gave rise to the suspicion that he either was not serious or was ignoring the obvious. But perhaps the greatest difficulty with Behaviorism as a theory is that in certain areas of life what goes on in consciousness and even in unconsciousness is the important matter, and not what the person does with his muscles, glands, or hands as an accompaniment to it.

For example, the physiological responses to strong emotions can be recorded, but these records tell little about what is really going on in the man who is having the emotion. The significant effects of a symphony are not the number of times the hearer claps his hands or the increase of his heartbeat, but in what goes on in his consciousness, and since by the rules of Behaviorism he cannot introspect, the most significant part of this experience has to be excluded from the whole domain of psychology. The fact remains that human life is made significant not by the muscle twitches and nerve jolts, but rather by the purposes of the individual and the way he perceives the world as a threat or a promise to these purposes. With this sort of material Behaviorism cannot deal—at least not with ease, grace, or conviction.

We have learned much from Behaviorism about human beings so far as their behavior is conditioned, and we have applied this, to some extent, in the teaching of children, especially in the kind of teaching we call training. When we want a response to be automatic and specific—as in reciting the multiplication table, recognizing certain word patterns—

⁷ Later research has shown that Watson may not have given enough attention to maturation in the development of the emotion. Bayley (17) found that crying from fear in strange surroundings is absent during the first two months of life, but by the age of ten months about 25 per cent of the babies do cry in strange surroundings. Bridges (18) holds that *excitement* is the fundamental emotional response and that rage, fear, love develop out of this as the baby gets older.

then we use conditioning, and the more we know about it the better job we do.⁸

GESTALT PSYCHOLOGY

There are times in the history of psychology when we seem to be watching a battle royal instead of a clean-cut bout between two individuals or two teams. Watson and the behaviorists opposed both introspection as a method and the structuralists' search for elements and their laws of combination. Watson did away with introspection but not with the building blocks. He merely used a different set of them, namely, conditioned reflexes.

In the Gestalt movement we have a defense of introspection, but not of the way the structuralists used it. Gestalt attacks both the structuralists and the behaviorists for about the same reason, namely, that they still regarded human experience as made up of little pieces glued together somehow by the laws of association.

What are Gestaltqualitäten?

For a long time, indeed at practically every step, there have been psychologists who could not accept the mosaic theory.⁹ When we open our eyes we do not see a mass of colors and shapes sprinkled around here and there. When I see a chair, it is the "chairness" of what I see that leads me somehow to look for the parts we call legs, back, and seat. A rectangular board is seen as a whole, but perhaps not as a door. Once we see its "dooriness," then its parts take on a different significance. For one thing, we now rarely think of it as being hung horizontally. One part of it looks like the place for a lock, another for the hinges. Nowadays it is not uncommon to find smooth doors being used as the base for beds and sofas by covering them with foam rubber. It must have taken quite an effort on the part of the first person to see the door as the base of a bed.

The point of all this, according to the Gestalt school, is that the wholeness-character of a door or a chair is not supplied by us out of our past experience, but seems to be *in the object* itself. Even a savage who had

⁸ Important in the development of Behaviorism in this country, in addition to Watson, have been: A. P. Weiss, Clark L. Hull, B. F. Skinner, E. L. Thorndike.

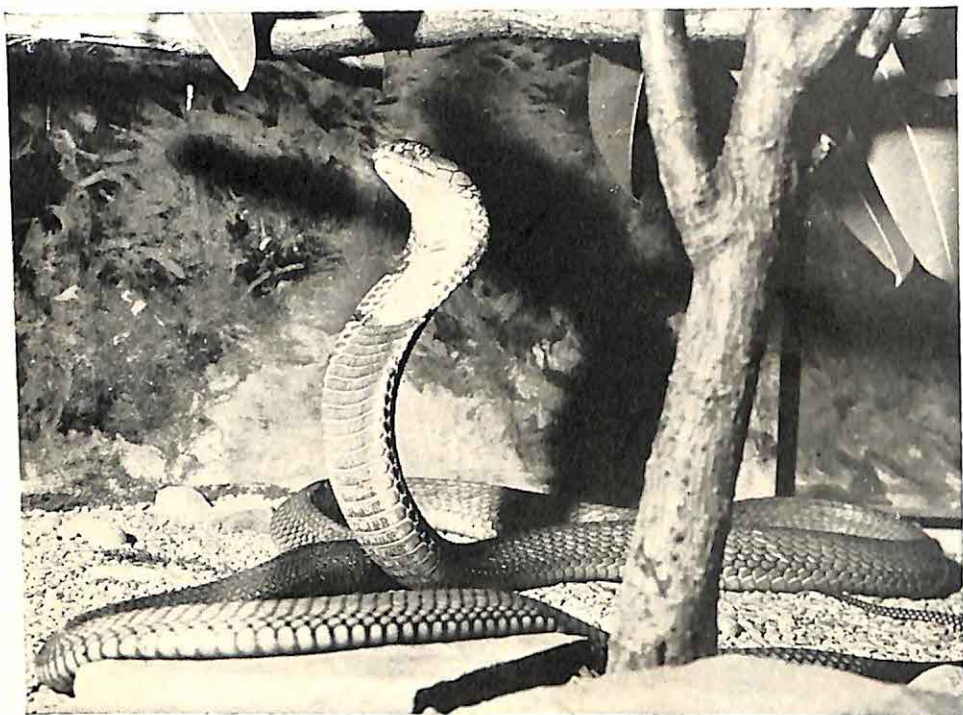
⁹ For example, Stout and Ward, among others.



Acme

ILLUSTRATION 5

This is a sterile chamber in a bacteriological laboratory. Here eggs are hatched in a germ-free situation. Whatever happens to these eggs, germs are not the cause: one variable has been eliminated. To what extent can we experiment scientifically with human experience?

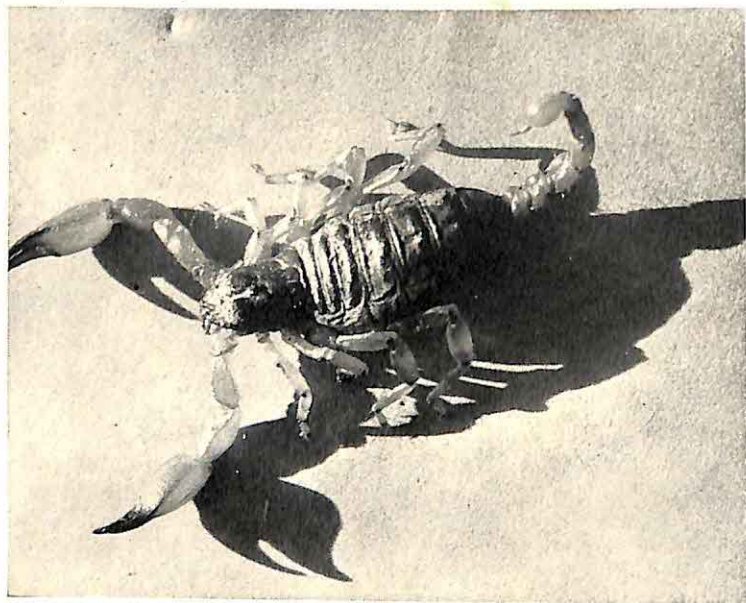


Philip Gendreau, N.Y.

ILLUSTRATION 6

(*above*) A king cobra. (*below*) A scorpion. Would a young child fear these if he had never seen them or heard about them?

Philip Gendreau, N.Y.



never seen a chair would not regard it as part of the floor on which it was resting.

This whole quality, moreover, was not simply the sum of its parts. In 1890, von Ehrenfels noted that certain qualities disappear when the area of the visual field is reduced to what can be seen through a pinhole. Thus, although a glassful of soapy water looks "turbid," only a bit of it seen through a pinhole would not look turbid. Similarly, clearness, definiteness, symmetrical, slender, round, angular, and clumsy have no meaning apart from wholes that arrange their parts in certain ways (19). A tune also has a whole-quality, von Ehrenfels pointed out, because when the tune is transposed into another key its constituent notes may change, but not the tune as a whole. He called these whole-qualities "Gestaltqualitäten." Gestalt is a German word that has been translated variously as form, shape, configuration, constellation, and pattern. The important point is, however, that the whole-qualities were not to be explained as the sum of sensations and images of their elements, nor by learning or previous experience.

Wertheimer. In 1912 at Frankfurt-am-Main in Germany, Max Wertheimer was studying the problem of how we perceive movement. He was using a much simplified form of a motion-picture apparatus in which two still pictures were projected at various rates. He found that a vertical line and one sloping slightly when projected on the screen at intervals of one-fifth of a second or more appeared as two distinct lines, one after the other. If he shortened the interval to less than one-thirtieth of a second, the two lines appeared side by side simultaneously. Between these two intervals the line would appear as a single line that moved from one side to the other. Wertheimer called this the "phi-phenomenon."

Since the motion is not in the stills, how do we come to perceive it? Can we explain it by combining sensations that have no motion in them? Did we learn to interpret these sensations as "moving" in our past experience? If so, how?¹⁰

How did the gestaltists defend introspection?

The structuralists had said: We have to introspect to examine and study our experience, but we cannot trust the ordinary observer. We have

¹⁰ The motion was *not* in the real space outside of the observer, but, argued Wertheimer, it could be the picture of a pattern of activity going on in my brain.

to train people to detect and describe the experiences they are having.

Watson said that psychology could never become a science that way because introspection can never give us objective data: what the introspector saw was private to himself and could therefore never be verified by more than one observer. Hence, he argued, let us forget what the individual finds within his *own* experience, and let us study observable behavior.

Wolfgang Köhler, who with Kurt Koffka (20) was a co-worker of Wertheimer, argued that both the structuralists and the behaviorists were wrong. The structuralists were wrong because they were looking for the wrong things, namely, separate sensations, images, and feelings. Naturally, the untrained observer could not find them, Köhler pointed out, because they were not there to find.

For example, in answer to the question "When do you see the deepest black?" most observers, according to Katz (21), say that it would be in a completely dark room. This would be an example of a "stimulus error" because the observer is not reporting what he has experienced, but what he has figured would have to be the cause of the experience "deepest black." The deepest black, continues Katz, is experienced not in a room wholly free from light; it is experienced under certain conditions of contrast between different degrees of illumination. In the lightless room one actually experiences a "dark gray."

This naïve reporting of what we experience, just as it appears to us and not as we think it should appear, is called the phenomenological method, and the whole Gestalt movement in psychology relies heavily upon it.

As for Watson, Köhler reminded him that even the behaviorist, when observing the behavior of others, was himself looking at a *perceptual field*, just as was the physicist when he looked at scales and pointer readings.¹¹

¹¹ "When, in these pages, I use the term 'objective experiences' it will always have this meaning. For instance, a chair as an objective experience will be something there outside, hard, stable, and heavy. Under no circumstances will it be something merely perceived, or in any sense a subjective phenomenon" (22). This is what Köhler calls the field of objects as we experience them. It is *caused* by *physical* objects interacting with another *physical* object, namely, my body. But we do not directly experience these physical objects, that is, we do not see light rays or the molecules of a brain. We perceive their results, which is always a phenomenological field.

Do the gestaltists have experimental evidence?

If you stop looking for elementary sensations, then you look for something else. The gestaltists looked for the principles by which a perceptual field organized itself. A field always has some things in the foreground and others in the background (23). It was found, for example, that *units that were near each other* tended to combine into one whole. Units enclosing a common space (nearness), groups of things moving together (common destiny), good continuation or tendency to make a symmetrical or simple figure, and the tendency to make as good a grouping as the conditions would allow were some of the principles advanced as deciding how the field would organize itself. In Chapter 9 these factors are discussed in greater detail.

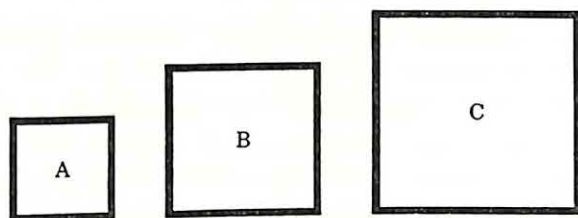


FIGURE 2

Some of the most interesting and valuable of the Gestalt experimentation has to do with learning and memory.

Suppose an animal is trained to go to the larger of two squares for food. A visit to B (Fig. 2) is rewarded with food; a visit to A is not. Let us say the animal has learned to discriminate B as the food-giving square. On the associationist theory, a connection has been formed between B, food, and the movements that lead to B, and this connection has been stamped in, so to speak, by repetition.

Suppose we now take away A and put in C, which is larger than B. What, on the associationist theory, should the animal do? Go to B with which the connection was formed. Actually, it is more likely to go to C. The explanation seems to be, say the gestaltists, that the animal did not react to A or to B, but to the pair A-B and the relation *larger than*. Since C is larger than B, it would explain why the animal would go to C and not to B despite its many rewarding trips to B.

The theory would also hold that what is remembered is not the sum

of elements, but a pattern. Thus it would be natural for the animal to remember a relation rather than separate elements, and for us to recall meaningful material better than nonsense syllables (24).

The gestaltists in their opposition to the structuralists and the behaviorists cite evidence from certain "constancy phenomena." For example, we rarely look at a penny in such a way as to have it cast a perfectly round image on the retina of the eye. Yet the penny continues to appear as round. Similarly, an object moving at a fixed speed will cause the images it casts on the retina to vary if we change our distance from the moving object. We do not on that account perceive the object as moving with varying velocity. These are examples from sense perception and are used by the gestaltists to show that the structuralists and associationists were wrong in trying to describe our experiences as compounds of pure sense images. What we perceive, the Gestalt psychologist insists, depends less on the images cast on the retina than on the operation of a whole region of the brain and perhaps of the whole organism.

Another set of phenomena illustrate the same principle in the field of muscular movement (motor process). Katz (25) shows that if the legs are removed from a beetle, it will try to move itself with its mandibles. If the same operation is performed on a guinea pig, it will try to get about by rolling its body. Hence the act of locomotion is not to be understood as a sum of separate little motions that the organism has learned to combine. On the contrary, locomotion is an act of the whole organism, an act that it will perform by organizing whatever resources nature provides, or whatever resources the experimenter is good enough to leave.

How do we learn?

Köhler, while interned on the island of Tenerife during World War I, studied what apes could do about solving problems. For example, a banana would be put just out of reach of the caged animal but a stick would be left within reach, and this, if used as a rake, could bring the fruit within reach.

The striking thing about Köhler's findings was that the ape did not seem to try and fail, try and fail over and over again until by chance he hit on the right thing to do. This is what Thorndike said animals would do when they are put in situations like this (see Chap. 11). The apes, however, seemed to solve the problem rather suddenly, as if they had

caught on to the scheme of things. In other words, they seemed to show signs of real intelligence.

On the Gestalt theory, the apes did not build up certain nerve paths between what they did and the stimulus. On the contrary, they saw a new pattern in which the stick acquired a relationship to the fruit that they had not noted before. Once noted the learning was over. This is learning by *insight*.

How does this theory view behavior?

Although the earlier experimentation of the gestaltists was on sensation, perception, and the higher processes of memory, thinking, and learning, their later work ventured into the field of motivation. What impels people to behave as they do?

Most of the other theories we have examined explained human behavior by some kind of stimulus arousing a rather specific response in the organism. Others said that man was born with a number of instincts that prompted him to do thus and thus.

In Gestalt theory matters stand otherwise. The brain, for example, is not regarded by Köhler as a complicated switchboard in which every incoming call (stimulus) is connected by a separate wire to an outgoing answer (response). On the contrary, it is more like a grid or a surface. Drop a little oil on a patch of quiet water. The oil distributes itself in a certain pattern until it reaches an equilibrium. Disturb it, and everything will move around until another stable pattern is achieved.

At any moment, says Köhler, both our nervous system and our field of experience are like these surfaces. Both are in a dynamic equilibrium in which every part is related to every other and plays a definite role in the whole. This gives it pattern or form and makes it a Gestalt. It has organization, and any disturbance forces every other part to shift around until a new stable organization is reached again.

Kurt Lewin (26), a Gestalt pioneer in the study of the broader aspects of human behavior, speaks of our always being in a situation—a kind of life space. Some of the objects in this life space are “positive valenced,” that is, they beckon to us as promising to fill the needs we happen to have at the moment. Others have negative valences, repelling us. There may be barriers between us and the things or goals we seek. But in any event we are always trying to restore a dynamic equilibrium that has been

disturbed by some lack in the body or in our psychic life. Lewin has devised a way of representing these situations in diagrams, and this mapping out of our actions in life space is called topology.

Notice how in all the Gestalt thinking the emphasis is on the situation and not so much on the inner urges, previous experience, or even the habits of the individual. Perhaps this is just an exaggerated reaction against the structuralists and behaviorists, who put the burden of nearly all experience on what we have learned.

For the gestaltist the world outside of us is already more or less structured. Objects are already connected to each other. We say properly that the sea is angry because we recognize the movements of the waves as having a pattern similar to our own movements when we are angry. The pattern of calmness is pretty much the same whether in the sea or in the face of the waiter who takes our order or in Gray's *Elegy*. We do not add the calmness to the sky nor the anger to the sea. Objects in our perceptual field act on each other, influence each other; they are not indifferent to each other. That is why we just see that some objects in the field are tending in the direction my self is taking or against it. My self is part of my field just as much as anything else is. Everything—in nature and in our experience—is organizing itself into forms and patterns according to the laws of Gestalt.

We see, therefore, how Gestalt is a protest against the splitting up of experience into nuggets of pure sensation, on the one hand, and against the ignoring of conscious experience, on the other.¹²

If a group of psychologists were studying the antics of an adolescent male in the presence of an adolescent female, the structuralist would say: What the young man is experiencing can be broken down into sensations of vision, sound, perhaps smell, and perhaps touch. These are accompanied by certain images, possibly of his mother or of motion pictures he has seen, and certain feelings of pleasantness, and strain.

The functionalist might briefly remark that this is clearly an instance of how the human race has managed to survive this long, while the

¹² Lewin's field theory, an offshoot of Gestalt, is close to Functionalism in that it takes human action as its prime concern, that is, the activities of conscious life, but it does not try to explain these activities by evolution, but rather by the interplay of tensions in the objective situation in which we find ourselves from moment to moment. Gestalt is also rather close to the purposive school, although here, too, the purpose of the individual at any given moment is more likely to be found in the equilibrium of the situation than in the history of the person.

behaviorist would say that certain glandular and muscular reflexes and a long process of conditioning account for the responses of the young man to this class of stimuli.

As for the gestaltist, he might say that in this situation the lady has almost positive valence for the young man because she represents the promise of the reduction of tension induced by biological and psychological urges. There are, however, barriers so that he is alternately brave and cowardly, but that, if we knew all the forces and their direction as well as their size, we could tell just what the young man would eventually do.

SUMMARY

In this chapter we have tried to trace the development of the major trends that we find today in psychology. We began with a discussion of method to show how psychology desperately tried to become an experimental science on the model of physics, chemistry, and biology. We also saw why this was difficult and discussed the attempts of Weber, Fechner, and Wundt to find something to measure in human experience, and a method of measuring it.

In Structuralism we find introspection developed as a method of studying experience under rigid and precise conditions, but the method did not suit the behaviorists, and the things they were studying did not suit the functionalists, while their results suited neither.

In Functionalism we have, therefore, an attempt to draw the attention of psychology back to how and why men behave as they do and away from the quest for the elements out of which their experience is built up.

Behaviorism abandoned introspection as a method, and observation of external behavior is used as a substitute. But just as the structuralists used images and feelings out of which to build human experience, so the behaviorists used reflexes and their conditionings.

The gestaltist tried to find the connections of experience in the *field of experience*, which for him is always organized into patterns. It is already built up into units, and we, for the most part, find them in the situations in which we are involved. Human action is the rearrangement of these patterns.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: To determine the degree to which we are aware of the origin of some of our conditioned behavior

Procedure: Have a committee distribute the following questions to all members of the class.

1. Are there any foods that you dislike very much? Yes—— No——
2. If your answer to 1 is "yes," can you recall how you came to have these dislikes? Yes—— No——
3. If your answer to 2 is "yes," please indicate how at least one of these dislikes was acquired.

If you do not dislike any foods, please answer the above questions with respect to persons or places that you dislike or fear very much.

The committee will examine the returns from this little questionnaire to find out:

1. What percentage of the returns have strong dislikes, fears, and so on.
2. What percentage can recall how these dislikes, fears, and so on, were acquired.
3. What percentage say they can recall but cannot or do not tell how they came to acquire a dislike or fear.

If the evidence bears out the contention that we can be conditioned to like, dislike, fear, and hate without our being aware of it, what does this mean for reducing group prejudices? Group hatreds?

PROJECT II

Topic: To determine how much we can learn by observing outward behavior under certain circumstances

Procedure: Arrange to have four or five classmates observe one subject at a lecture or in a restaurant. The observers should not hear what the subject is saying. The subject should be well enough known to at least one of the observers so that he or she could question the subject after the observation is over. (The subject should be unaware of the observation.) The purpose of the observation is (a) to record the outwardly observable behavior of the subject in as much detail as possible, (b) to infer or guess what the subject was thinking about during the observation

Compare the results obtained by all the observers and then with the subject's own reports on what he or she had been thinking about.

How do your results bear on the claims of the behaviorists that one need not know what the subject is conscious of in order to understand his or her behavior?

PROJECT III

Topic: To test the contention of Gestalt psychology that we respond to total organization of stimuli rather than to separate elements in perceiving objects

Procedure:

1. Select four or five classmates as subjects.
2. Bring in several articles in common use, for example, a book, a lamp-shade, a tumbler.
3. Blindfold the subject and permit him to feel a small section of the object.
4. If he cannot identify it, allow him to feel larger and larger areas until identification is made.
5. Note and discuss the extent to which the total form or pattern of the object is essential to identification.

Note: The same type of experiment may be performed by allowing subjects to hear a number of small portions of very familiar music.

RECOMMENDED READINGS

Most economical of the student's time would be to sample such readings as the instructor might select from the following compilations:

- DENNIS, WAYNE. *Readings in the History of Psychology*. New York: Appleton-Century-Crofts, 1948, Chaps. 18 to the end.
- GARRETT, HENRY E. *Great Experiments in Psychology*. 3rd ed. New York: Appleton-Century-Crofts, 1951, Chaps. 1, 4, 6, 7, 11, 13, 16.
- HARTLEY, EUGENE L., BIRCH, HERBERT G., and HARTLEY, Ruth E. *Outside Readings in Psychology*. New York: Thomas Y. Crowell Co., 1950, pp. 476-83.
- RAND, BENJAMIN. *The Classical Psychologists*. New York: Houghton Mifflin Co., 1912, Chaps. XXXV to the end.
- VALENTINE, WILLARD L., and WICKENS, DELOS D. *Experimental Founda-*

tions of *General Psychology*. 3rd ed. New York: Rinehart and Co., 1949, Chaps. 1-3.

For more or less contemporary discussions of the fields or schools of psychology, consult:

DEXTER, EMILY, and OMWAKE, KATHARINE T. *An Introduction to the Fields of Psychology*. New York: Prentice-Hall, 1938, Chap. 2.

HEIDBREDER, EDNA. *Seven Psychologies*. New York: Century Co., 1933, *passim*.

HIGGINSON, G. D. *Fields of Psychology*. New York: Henry Holt and Co., 1931.

KELLER, FRED S. *The Definition of Psychology*. New York: D. Appleton-Century Co., 1937, Chaps. 2-6.

WOODWORTH, R. S. *Contemporary Schools of Psychology*. rev. ed., New York: Ronald Press Co., 1948.

Part II

THE STRUCTURE AND DYNAMICS OF BEHAVIOR

In the next three chapters our purpose will be to show how human behavior develops from simple beginnings into the extraordinary complexity of modern civilized life. We are impressed by the way in which the relatively simple behavior of the infant becomes proliferated into the richness of adult experience. We are puzzled by the bewildering variety that this adult experience assumes in different individuals and in different cultures.

It will become clear that certain basic ideas and principles are needed to understand behavior. One of these principles is that no human behavior is meaningless. This means that we have to seek an explanation for it, however elusive such an explanation may turn out to be. Even the madman in a "senseless" orgy of killing forces us to ask what "sense" these acts make to *him*. Slips of the tongue, aimless doodling, and all other apparently insignificant pieces of behavior thus become potentially significant. These ambitious phrases do not mean that we or any other psychologists can or will give adequate explanations for all behavior, but if psychology ever achieves its ideal of becoming a science, this is what it will try to do.

This all means that behavior has a structure which psychology tries to discern. We shall try to show that human behavior is aroused by disturbances of homeostasis—the balance of the bodily economy or the balance of forces in the personality. We shall try to see how rather simple deficits and irritants (both physical and psychical) lie at the source of all human behavior.

Here are the dynamics of behavior.

These simple causes of behavior become elaborated in many different ways. Chapter 7 will describe this process as it moves from simple needs to very complex ones. The special processes involved in this elaboration—perception and learning—will be discussed in Part III.

5

Some Basic Conceptions about Human Behavior

THE ORGANISM

What is an organism?
What types of unity are available for the organism?
What is meant by homeostasis?
What is a stimulus?
How does the stimulus become effective?
How does the organism select its stimuli?
What is meant by attention?

TYPES OF RESPONSE

What is a response?
What is a reflex?
What are some other types of response?
Can responses be abnormal?
Which is important—the past or the present?

HEREDITY—ENVIRONMENT

What is development from the whole to the parts?
Why is maturation essential in behavior?
How important is heredity?
What is meant by environment?
Is heredity more important than environment?

WHAT IS human behavior? In the light of all that has been said, how shall we talk about it? What theory shall we use? Or should we combine a number of theories, adopting what is called an eclectic approach? We feel that the student has the right to be let in on these matters. Consequently, we shall begin by setting

forth the basic ideas that we shall use in the interpretation of the facts that observation and experiment have provided us for study.

THE ORGANISM

What is an organism?

Man is a living organism. Any entity is an organism if it is made up of various parts each of which has a special role to perform in the maintenance of that entity. For example, the heart, brain, liver, and other organs are parts of the organism we call the human body. By a living organism is meant one that has within itself the source of at least some of its activity. Thus, a printing press is constructed to perform like an organism but never succeeds in becoming one.

Organisms vary in their complexity from the one-celled amoeba, through the jellyfish and earthworm up to cats, dogs, and men, but each is self-sufficient in that it is completely equipped for what it has to do. Further, when it behaves, an organism seeks to realize its potential, and therefore, we can style its activity purposeful, at least in the sense of maintaining itself. Wilson (1) has demonstrated how a sponge, when squeezed out of shape, reconstructs itself into its original form, that is, it seeks to preserve its form.

What are tensions?

When a person is hungry or thirsty a state of tension exists within the organism, and the organism accordingly seeks to satisfy the tension by some appropriate activity. Thus it will attempt to find food or drink to relieve the tensional situation, and we say that a response has been made. Tensions express themselves in feelings of discomfort, restlessness, and even in severe pain. They also express themselves in wishes, desires, wants, and needs. Of some the organism is conscious, as in the awareness of a sharp pain; others are hidden from immediate awareness. Sigmund Freud, the founder of the psychoanalytic school, believed that the greater part of behavior resulted from motives buried in the unconscious mind of the individual and compared the mind of man to an iceberg, with most of it submerged in the realm of the unconscious. Other psychologists put less stress on the unconscious.

Tensions, since they underlie needs, wants, and desires, are funda-

mental to life and may be thought of as the *appetitive principle*. Tensions persist until relieved, and until they are relieved the organism is in a state of instability. If the human organism could satisfy every tension as soon as it arose, life would be a fairly simple process, but this obviously is not the case. Many desires are denied satisfaction for one reason or another, and the organism must continue the search for satisfaction, directly or by some measure of compromise whereby partial satisfaction is achieved. Sexual desires, for example, must often be curbed for religious or social reasons, and the individual may have to substitute other activity in their place.

What, then, are tensions? Some are physical, some are psychological. Basically, they are physical and psychological energies, but just *where* these energies originate is still a mystery for both physics and psychology. Nevertheless, even if we are unable to explain energy or tension completely, they still are useful to us in our description of the behavior of the organism.

What types of unity are available for the organism?

When tensions start operating in an organism, the organism tries to do something about them. Since the unity of the organism is being disturbed or even threatened with destruction, it explores the various avenues open for it to eliminate or reduce the tensions. Let us see what ways are available for the maintenance of this unified behavior.

Physical unity. C. M. Child (2) demonstrated how a single-celled organism such as the amoeba attains physical unity by means of gradations or physiological field properties, sometimes called gradients, extending from the surface to the interior of the cell. When an external force presses on the surface, the protoplasm of the adjacent area is incited to higher levels of physiological activity. If a worm is cut in two, the center of the organism at once assumes a surface character and a new center is formed as far away from the surface as possible. Thus we have two worms.

A membrane is the boundary of a cell. One of the properties of the membrane is the maintenance of a balance or equilibrium between inside and outside pressures. When any balance is disturbed, a counterreaction takes place, called irritability, since the membrane tends to maintain the balance. Hence even in the simplest cell matter a definite unity is exhibited by the organism.

As Murphy has said,¹ it is by means of an inner organization that the physical unity of the organism is maintained, an organization that is first of all chemical in nature. This unity not only maintains life, it also provides for change and growth. Such organic unity means that each organ makes its contribution to the function of the organism as a whole; the separate organs are not important in themselves, but only as they keep the organism functioning.²

Psychological unity. The physical unity of the cellular level and of the lower animals has its counterpart in the human organism in primarily what is known as the ego, a unifying process or activity for behavior that is different from the more simple unity just mentioned. The tension of thirst may be present, but the experience is *mine*; I know that *I* am thirsty. This will be discussed in Chapter 13, and has already been mentioned in previous chapters.

Symbols stand for things: a flag is a symbol of the country, words are symbols for specific or concrete things or experiences. Through a symbolic unity, therefore, the human organism is able to give meaning to his behavior, and because he can generalize from his experiences, his behavior becomes in a sense purposeful activity.

Man is able to think, he can plan his future actions, and can remember what he has done in the past so as to meet the needs of the present. If he is cold, he knows what to do to raise his body temperature; he will put on more clothes, adjust the oil burner, prepare some hot coffee, and so forth. Thus, due to his ability to reason, learn, and remember, man is able further to meet his needs and tensions in a meaningful manner.

The human organism is able not only to integrate his experiences but also to relate them to other experiences. One experience will become associated with another, and if the integration is not all it should be, as in the confused actions of an abnormal person, it still exists as a principle of life. Without unity, personality would be a meaningless term and behavior would be chaotic and inefficient.

¹ "The laws of the organism relate first, then, to chemical compounds within the body, the chemical reactions between them, and the chemical reactions with the outer world."—G. Murphy, *Personality* (New York: Harper & Brothers, 1947), pp. 30-31.

² Goldstein writes: "There is neither a struggle of the members amongst each other in the organism, nor a struggle of the whole with the members."—K. Goldstein, *The Organism* (New York: American Book Co., 1939), p. 423.

What is meant by homeostasis?

Although the ancient philosophers did not understand the modern concept of energy systems, they recognized that some internal condition of imbalance took place when the organism was troubled or disturbed or when some biological need was operating. Their ideas of something "within" the organism also assumed the concept that the organism could restore the disturbed balance, and that some bodily organ, such as the heart, was responsible for the restoration and maintenance of a balanced state.

Today psychology looks on man as a part of nature, and as such he is part of the energy systems in nature, those forces in continual operation in the natural world. In what is now called the principle of homeostasis, Cannon (3) has declared that, whenever the balance or equilibrium of an organism is disturbed, energy is mobilized until the balance is restored. Thus, when a tension is operating, the energies of the whole organism will be employed in the attempt to restore the state of equilibrium (4). Therefore, if the organism is attacked or threatened, it will fight or gather together all its available energy to meet the immediate situation.

We can see this more easily when the organism is threatened by something in the external world, yet the same idea applies to a disturbance within the organism. We know from physiology that chemical reactions take place when we eat, that glandular secretions flow in our bodies, that the blood distributes chemicals to different parts of the organism, and that an internal body temperature is maintained which is effective for the life of the organism. This is called physiological homeostasis, with the whole organism continually seeking to maintain, and if necessary, to restore the condition of bodily equilibrium.

Is there such a thing as psychological homeostasis?

If you are hungry, you will seek food to satisfy the tension that has upset your internal balance. Will you do anything if someone insults you or causes you to feel inferior? From your own experience you know that you will do something to restore what we can call the previous state of psychological relaxation you had before the insult. Your ego will try hard to regain the lost feelings of self-esteem that normally you have maintained. We may characterize this as the organism's effort to retain a state of psychological equilibrium that it normally enjoys.

Fundamentally, whenever any tension is operating, the organism becomes active so that relaxation will again result. Even if the organism is not aware of the cause of the tension, and thus may not be aware of the way to relieve it, there will be some behavior and some mobilization of energy. The child who is forced to remain in the classroom, and who finds that the lesson is boring him, may be unaware that it is boring only because he has not the intelligence to understand it. Consequently, he may daydream about more pleasant things, distract the attention of his nearby classmates, or openly seek to annoy the teacher.

Further, a number of tensions may be operating at the same time. An individual may be thirsty and hungry, as well as restless. In the course of relieving some of them a person may by his activity arouse new tensions and may create new goals. For instance, a woman may have been jilted by the man she was hoping to marry. She now is confronted with a number of tensional situations: she is furious with the man because his rejection has changed her plans; she fears the ridicule of her friends, and she will now have to return the engagement ring so proudly exhibited. Although her ego has been badly dented, it must be repaired. Accordingly, she devotes all her time and energy to her work, with the result that the boss soon promotes her to a better position, whereby her self-esteem is regained.

Psychological homeostasis, therefore, often means more than the return to the former position of balance. Owing to a change in goal, a progressive, or "higher," state of equilibrium is attainable.

What is conflict?

Because tensions continue to operate until they are relieved, the organism is impelled to act until they are relieved. We know, moreover, that the relief of a tension is only a temporary affair. Since the organism is constantly stimulated internally and externally, a state of balance is not maintained for any great length of time. Not only do we need to continue eating and drinking to restore physiological balance, but our goals, desires, and wishes keep changing and require some new activity to fulfill them.

In addition to the relief of tensions, the organism is frequently the scene of desires in conflict. A person desires to be a good athlete but is not quite willing to train strenuously so that he can achieve such a goal; the student would like to get a high grade on the test in the morning but

has a date the evening before. In any conflict situation some choice has to be made between the desires in operation. A conflict invariably means that *frustration* is being experienced by the person in some degree of severity, because neither of the warring desires is being satisfied. The frustration can be external or internal, it can be physical, social, or psychological; the resulting conflict may be conscious or unconscious.

A conflict usually involves some internal incompatibility of motives. The person perceives that the motives are not compatible, that is, both or all cannot be satisfied. Thus basic desires may conflict with social taboos, or the conflict may arise from a perception of different values for the individual. When the conflict is such that a person in trying to escape or evade one difficulty is faced with another of equal difficulty, it is called a dilemma.

Conflicts are unavoidable and, consequently, they become a major concern for psychology as it seeks to describe human behavior.

What is a stimulus?

By definition, the Latin word "stimulus" means something which incites to activity. If you were stuck with a pin, the pin would be the stimulus to your reaction of sudden movement. Anything that is capable of influencing the activity of living protoplasm is a stimulus, anything that starts an impulse in some nerve or excites a muscle into action.

Although we speak of a stimulus in describing behavior, we generally mean the plural of the term, "stimuli," since an organism is always being stimulated by a number of stimuli. In psychology we think of a pattern of stimuli in this connection, and this pattern is often called the situation. Stop for a moment and consider all the different stimuli that are pressing or impinging upon your body right now. You see different objects and colors around you, you hear certain sounds, you feel various pressures, you may smell certain odors, you can have a pain in your stomach, and so forth. All these are stimuli although they probably vary in their strengths or intensities.

In what way are the energies of the world stimuli?

Present-day physics confirms for us that our world is composed of many energies. Max Born (1882—), in his book *The Restless Universe*,

writes that there is no rest in the physical world; that the universe is a restless universe of atoms.

The energies of the restless world are stimuli that are made known to the organism through *sensory receptors*. Sensory nerves carry messages to the brain and the spinal cord, and motor nerves bear the messages to the muscles and the glands. Through these mechanisms the organism becomes aware of the external world, and we usually employ the term "consciousness" to describe this awareness. The receptors that respond to the energies have relatively specialized functions, that is, they respond more readily to specific types of energy. Thus the eye responds more readily to light, the ear to sound, and so forth.

However, not all the energies of the external world are "picked up" by the organism. Because the organism lacks properly attuned receptors capable of being stimulated, only certain stimuli are received by it. For example, our eyes do not pick up X rays; our ears do not receive frequencies of sound waves which are below 20 or above 20,000 cycles per second. Further, even those stimuli which are picked up are not received in their original version; the eyes are not perfect cameras, since they give us an enlarged and somewhat distorted picture of the stimulus. Hence the human organism has limitations in so far as knowing all the energies in the world around us.

In what sense are stimuli internal?

When you have a pain in the stomach you probably would say that internal stimuli were in operation, and the same might be said when you were hungry. Thirst and sex also have internal stimuli, and as we shall see later, all the biological drives or tissue needs can be considered internal stimulations for the organism. Likewise, the ductless, or endocrine, glands secrete chemical substances called hormones, which both influence the nervous system and play a prominent part in our emotional reactions. For example, removal of the adrenal or thyroid glands will result in a marked reduction of the organism's activity.

How does the stimulus become effective?

As you walked across the campus this morning your sensory receptors were being stimulated by many different stimuli. You were exposed to

sights, sounds, colors, and odors. Perhaps you were hungry or tired, or had a headache. You had a quiz in psychology, and you were trying to get to class on time. The clock in the administration building struck the hour, and you became aware of the lateness of the time; a pretty girl almost bumped into you, but you did not "notice" her nor were you aware that someone was burning leaves nearby. Other stimuli may have impinged upon your sense receptors, yet you may not have been conscious of them.

In some manner the stimuli that flood in upon us must be *organized*; they must be patterned or grouped together so that they will have meaning for the organism. Certain stimuli will be perceived, others will be ignored. What does this selecting and organizing? Stimuli may have no pattern in themselves, although sometimes by their intensity or contrast they may cause us to become aware of them; a single white birch in a grove of maples will seem to "stand out."

How does the organism select its stimuli?

True, we can declare that the nervous system is responsible for the organization, but the nervous system is only part of the process. It may explain how our nerves and muscles operate, but *why* the organism selects and organizes in the specific fashion it does is another matter. Psychology is rather certain that it is the whole organism that selects and groups together the stimuli, and it performs this process because it is efficient for it to do so in its totality of behavior. We have said that there is a unity in behavior, and this unity means that the whole organism is always involved in any activity it undertakes. Whole organism also includes the inner, or subjective, experience of the person.

How the organism unifies its experiences is essentially a matter of perception by the organism that is an entity unique in itself. Objects and events in the external world are perceived in terms of the experiences of the perceiver, through the "eyes" of the unique organism doing the perceiving. Because it is a *unique* organism that is perceiving, and therefore giving meaning to the objects perceived, it is necessary that we know a great deal about the perceiver himself if we are to describe or explain much of his behavior. When society, for example, says that this person is abnormal in his actions, we have to discover *why* the person perceives the world in the manner that he does, and that is generally a difficult task.

The individual, then, will perceive *something*, and he will perceive it in a *particular* way, which means that he has some purpose for the perception. Consequently, we can declare that perception is meaningful to the perceiver.³ If we perceive a door or an inkblot, we perceive both with some meaning, although one is well structured and the other is not, and while the door is perceived as a door and the inkblot may be perceived as a lion ready to spring, they are perceived as meaningful or they are not perceived at all.

What is meant by attention?

The fact that we perceive certain stimuli and not others means that we are *attending* to some and not to the others. Likewise, we can attend to certain stimuli which have not actually happened to impinge upon us, but which we expect will stimulate us. A sprinter is waiting for the sound of the starting gun. We say that he is *set* for the signal, and the starter of the race indeed uses the term when he says, "Ready, Set." The runner is concentrating on hearing the gun, and his attention is directed accordingly.

In a different case we consciously attend to our current perception and ignore other stimuli. If we are absorbed in the reading of a good book, we probably are not aware of the ticking of a clock, the drumming of rain on the roof, or the colors of familiar objects around us. On the other hand, we sometimes can become aware of a stimulus at a later time than when the stimulus actually was impinging upon us. For instance, we can later recall a remark that someone made, although we were not conscious of the remark when it was made. To all intent we were not attending at the time.

It is necessary that we both attend and perceive in our behavior, since we are constantly exposed to so many different stimuli. Some workable method of selection must be employed, and we can list both of these processes as performing this function. Attention has been said to be more concerned with selection and perception more concerned with organization, yet the two are closely related.

³ Perception means awareness for the perceiver. Although some writers on the subject, such as W. H. Ittelson and H. Cantril in *Perception, A Transactional Approach* (New York: Doubleday and Co., 1954), declare that "Many of the psychological activities which enter into the perceptual process do not directly enter into the awareness of the perceiver, even though he may be taking them into account," we shall stress the place of awareness in the process.

How do external factors operate in attention?

In many ways the process we call attention is so inclusive that an attempt to list the factors in the process results only in making us aware of its similarity to perception itself. In addition to such matters as needs, wants, interests, and attitudes, which will be discussed in succeeding chapters, there are some external factors which operate to direct our attention, factors which can be considered as physical qualities of the stimuli.

Intensity or size. The strength and size of the stimulus are factors in securing one's attention. A loud sound or a large sign draws attention faster than a dull sound or a small sign.

Movement. Movement or change attracts attention. A moving object catches the eye quicker than a stationary one. There are numberless illustrations of this, from everyday observation of people and objects to electric advertising signs that "move."

Repetition. Repeat something often enough and it will be attended to: television commercials make us well aware of this.

Contrast. A noticeable difference in an object from the surrounding field will be attended to more easily. A spot on your light suit will be noticed quickly.

Because our attention is constantly shifting or changing, we do not attend to more than a few simple objects at any one time. *Distraction* is the opposite of attention, and usually it results in a lowered efficiency for the individual. As with attention, certain external factors cause distractions. Sights, noises, changes in temperature, and the like disrupt our attention; internal distractions such as worry and lack of interest are frequent and interfere with our activities. Lack of interest in his work is probably the single most distracting factor in a student's progress. However, not all distractions reduce efficiency; for instance, factory workers performing monotonous work are aided by music played in their surroundings.

TYPES OF RESPONSE

What is a response?

Having perceived the stimulus or a complex of stimuli, what follows? We say that the organism does something when it perceives, meaning

that it responds in some manner. In what ways can it respond? We might simplify matters if we think of responses as falling into the following kinds: muscular and glandular, perceptual, conceptual, and emotional.

"Response" was originally a term to indicate the reaction of the muscles and glands of the body to sensory stimuli. However, this physiological explanation is not sufficient to describe human behavior. If, for example, you are stuck with a pin, you can respond in various ways: you may jump, smile, cry, grit your teeth, or do something else. Even in such a simple situation as this *you*, not simply your muscles, do the responding. Consequently, if we are to explain the response accurately, we must know a good deal about the person making it.

Psychology usually calls the I the ego or the self. In this book we shall use "ego" a great deal to explain behavior. The concept of the ego will be developed later in some detail (see Chap. 13). The ego is intimately related to your personality structure, and if you know yourself pretty well you can describe your behavior in meaningful terms. This means that we must go quite a way beyond the stimulus if we are to explain the response.

If a response were merely a reaction to a stimulus, so that every time the organism was stimulated it had the same response, our inquiry would be enormously simplified. Yet it is obvious that such is not the case. The organism can or will react differently to the same stimulus at different times, and two persons meeting the same situation can respond differently. John Smith may have eaten so many oranges on his Florida vacation that on his return home he refuses his usual orange at breakfast. Mary X and Frank Y watching a comedy television program can have diametrically opposed feelings about it. Mary says that it is "simply a howl," whereas Frank is glum and bored with the whole thing.

What is a reflex?

The simplest type of muscular response is a reflex. Usually we think of a reflex as some specific movement made by the organism to protect itself from an injury. If while frying bacon some of the hot grease splattered out of the pan onto your hand, you would respond by quickly pulling your hand back from the pan. You would do this automatically, without thinking, that is, involuntarily. When a light is flashed in front of your eye,

there is a reflex reaction by the eyelid in the form of a wink; if your knee is tapped in the right place, the leg jerks upward (the patellar reflex).

In addition to these there are postural reflexes. These include our reactions in maintaining the body in an upright position, the reaction made by the organism to regain a disturbed balance, and the reactions that permit the organism to support itself as the weight of the body shifts. The more spectacular "grasping reflex" of a newly born infant, which allows the infant to support his body by holding on to a bar, is present in nearly all human beings at birth. Coughing, sneezing, and heart and respiratory movements also are to a large extent reflexes.

Therefore, a reflex is a response made by the organism to protect itself, to carry on essential organic processes, or to maintain balance, and consequently even in this type of response there is a "need" operating. Because there is a need, energy is released and channeled more or less automatically to meet the need.

What are some other types of response?

Although we are equipped with a considerable number of reflexes, these constitute only a small proportion of our total behavior. The reflexes are important, however, for they control the life processes themselves. Most of our responses are directed toward resolving complex tensions or in seeking some desired goal. The fact that the individual selects certain stimuli in his perceptions means that he is discriminating in his responses.

Habits and skills. Many responses are repeated so often that they become almost "automatic." We call these well-established habits. We tend to think of them as muscular movement patterns which have been learned and retained because they served a purpose. Meeting some need, they persist in the behavior. Once established, however, they may persist even after the original purpose has been achieved or discarded. Thus a man establishes the habit of smoking because he wants to smoke, but he may find it difficult to stop should he want to do so. Skills are learned responses which seek to make the behavior more efficient. Handwriting, dancing, sewing, learning how to bat a ball or to use a screwdriver are skills.

Ideas. The responses that are termed images, ideas, and concepts constitute much of human behavior and are closely allied with verbal ability. Conceptual responses permit man to behave more efficiently than the lower animals because they enable him to deal with symbols of things

instead of the things themselves. By experimenting with an imaginary house we spare ourselves the costly errors we might make if we experimented on the house itself. Concepts (names of classes of things) enable man to deal with groups of objects instead of restricting him to thinking of each item in the class separately. Without this short cut, all scientific thought would be impossible (see Chap. 11).

Ideas employ previous associations or experiences, we respond in ways that we have come to learn as the way to respond. We perceive John Smith, but we perceive him in a definite manner; we may like him or not like him. As such, we are making an emotional evaluation. This amounts to a set or an *attitude* we already hold about John Smith. As we shall see, many of our responses are due to attitudes which we have formed, especially noteworthy being our biases or prejudices (see Chap. 15).

What is an emotional response?

The term "emotion" means a "stirring up," a strong feeling of pleasantness or unpleasantness for the organism. We feel "angry," "afraid," "happy," "depressed," "elated." Along with the feeling-tone there are varied bodily reactions. The *autonomic nervous system*, which activates the smooth muscles and glands of the body, is associated with an emotional response. Composed of two parts, the *parasympathetic* and the *sympathetic*, this nervous system plays an important function in behavior. The parasympathetic part is called the conservator of bodily energy, since it protects the organism by such means as lowering blood pressure, slowing the heartbeat, and constricting the pupil of the eye when exposed to a strong light. The other part, styled the sympathetic section, is the "emergency" portion of the body. When the sympathetic section is activated, the blood pressure and heartbeat are increased, the pupil is dilated, and digestion is inhibited. Blood is diverted to the muscles and body extremities, the adrenal glands are strongly stimulated, and these changes permit the organism to run faster, hit harder, and generally meet an emergency situation. Owing to the redistribution of the blood in the head, one may grow red from anger or pale from fear. External reactions to an emotional response include such facial expressions as laughing and scowling and changes in the voice and speech.

Emotional responses may be helpful or harmful to the organism, in the sense of organizing or disorganizing the behavior, and when continued

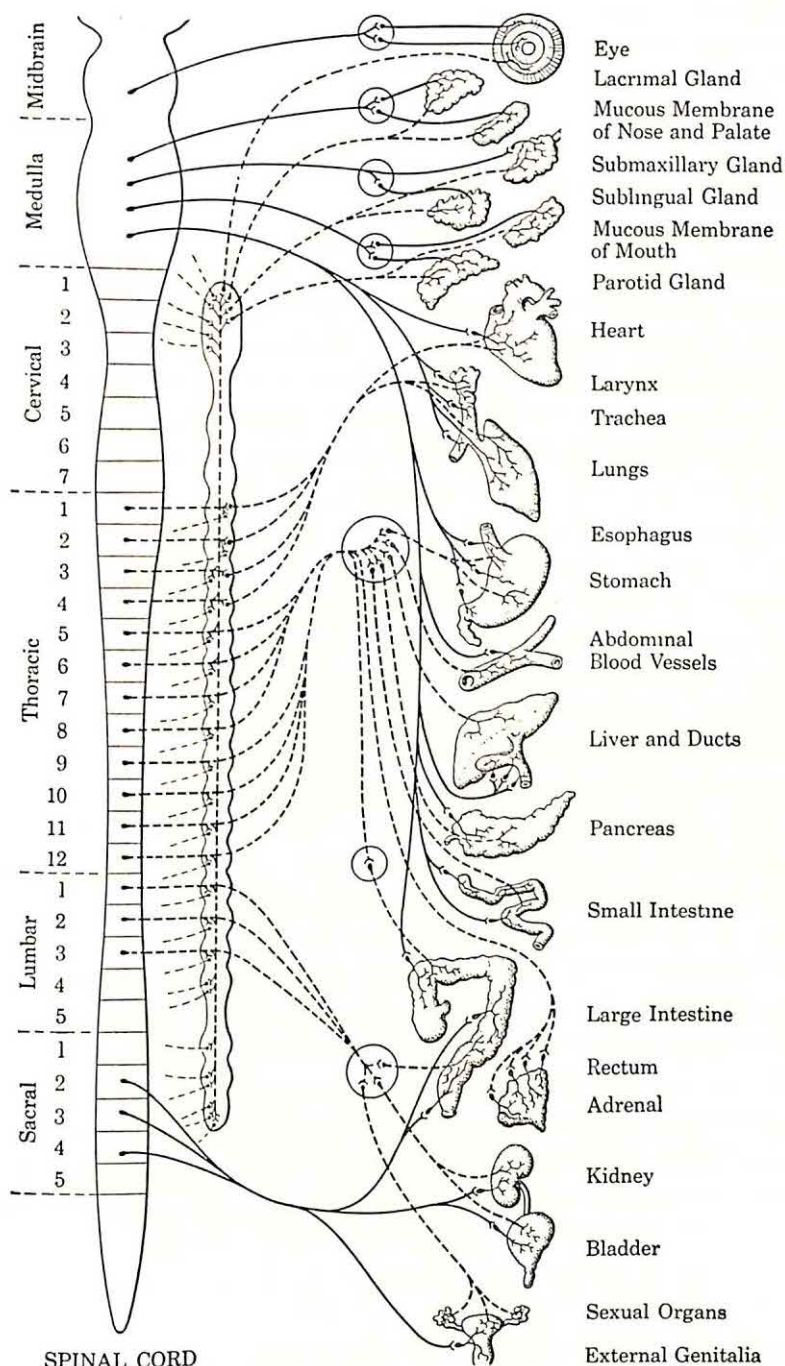


FIGURE 3

THE AUTONOMIC NERVOUS SYSTEM. The parasympathetic branches, arising from the brain and sacral vertebrae, are indicated by solid black lines; the sympathetic branches, arising from the thoracic and lumbar vertebrae, are shown by broken lines. (Redrawn by permission of *Scientific American*.)

for any length of time they can cause physical disorders like peptic ulcers. Thus emotional responses describe not only certain acts of behavior but also how the organism feels (see, further, Chaps. 6 and 7).

Can responses be abnormal?

In its responses the organism can become so rigid or inflexible, or so different from what others in the society do, that the behavior is called abnormal. When a person feels threatened he will respond in some manner so as to relieve the threat. An individual may, for instance, refuse to touch money because he is fearful of germs or a person who has learned to dread lightning may hide himself in a closet whenever there is an electrical storm. In more severe cases an individual may hear voices threatening or abusing him or commanding him to carry out some act of violence.

What is normal and what is abnormal is sometimes not easy to define. Generally normality is defined as a matter of degree, a point on a continuum or scale where behavior is shown by a large number of people and hence considered normal, and deviations from that region of normality are thought abnormal. Hiding in the closet during a lightning storm is much more abnormal than the more or less normal behavior of not desiring to stand under an isolated tree in an exposed place while the storm is in progress.

Psychology is concerned with abnormality as well as with normality, and sometimes what is normal is highlighted by conditions of abnormality. Sigmund Freud, for example, rarely treated or worked with normal individuals and built up his theories of psychology from his clinical treatment of neurotics. He arrived at what he believed to be normality from what he observed of abnormality. Before we have completed our inquiry into what constitutes human behavior we shall spend some time in discussing the abnormal or unhealthy personality (see Chap. 13). Here it is enough to suggest that abnormal responses are the result of perceptions that deviate markedly from what is expected from the majority of individuals.

Which is important—the past or the present?

If we know all about a person as he now behaves, why should we care about the past events in his life? Lewin said (5) that, since neither past

nor future exists at the present, neither can affect the present. In other words, what we really want to know is the present behavior of the person; the past is gone and the future may never arrive.

Theoretically this seems sound, yet we must take into account that the present person is, at least to some extent, the result of what he has been in the past. Further, as Adams (6) says, "It is usually most convenient and often indispensable" to know the past history of the person. While we are concerned with the present, it may be simpler for us to explain this present by inquiring into the past. This is not the same as saying that what the person is at present is *only* what he was in the past, and that what he has been in the past will determine what he will be in the future. Because the world is dynamic the individual personality structure likewise is dynamic, and may be capable of modification. The immediate present may include, and probably does include, some of the past, but this does not mean that it is or will remain what it was in the past.

Most psychologists agree that the first few years of life are important in the development of the individual's personality, and the Freudian school of psychology declares that they are all important. For example, in seeking an explanation for Hamlet's motivation, it may be said that the cause was an oedipus complex, an early belief that his father was a rival for Hamlet's own love for his mother, and though this had been "repressed," the childhood conflict was revived by the second marriage of his mother.⁴

However, as we shall see, the needs of a person change as he lives his life, and the ways one will perceive these needs are also capable of change; while the perceptions may be made in terms of the past events, they do not necessarily have to be perceived in that manner, and we cannot ignore the present in favor of a few critical or traumatic happenings of the past.

HEREDITY—ENVIRONMENT

Although he must pass through various stages of development before he is born, the human organism is a unique individual from his conception. During the embryonic period his structure begins to assume some form, but it is in the fetal period, or the prenatal stage, that he is able to be described as a human being. As a fetus, he is capable of being stimulated,

⁴ From Ernest Jones, *Hamlet and Oedipus* (New York: W. W. Norton and Co., 1949).

and makes movements within the womb; also during this time he grows considerably in size, the result of both an increase in the number of cells and an increase in the size of the cells themselves.

At birth the human organism is relatively helpless. He is so dependent on others that if left to himself he could not survive. Even if, unlike certain of the lower animals, he cannot feed nor shelter himself, he does respond with much success to the new world into which he has been suddenly thrust. For instance, he can breathe for himself, digest his own food, move his whole body; he possesses the basic reflexes, can cry if hurt or uncomfortable, and has a fairly well-developed sensory structure. He is ready to meet life but must learn how to do so.

What is development from the whole to the parts?

The first movements of the fetus are mass movements, and from these more specific or specialized movements are developed. At birth this mass activity is largely random activity, consisting of such diffuse and massive movements as squirming, rolling, and bending. Also there are many specific reflexes, such as sucking, swallowing, sneezing, and grasping (7).

Differentiation. Out of this random mass activity there gradually emerge more precise responses. These represent attempts to adapt the parts of the body to meet the demands of the environment, and hence can be considered part of the growing efficiency of the organism in its behavior. An example of differentiation can be seen in the grasping of an object by a very young child. In the beginning the child uses his palm in grasping the object, and it takes time for him to learn to employ the fingers and thumb in the operation.

Integration. Through what is called integration the separate aspects of behavior become united in an organization that is capable of still more complex behavior patterns. An illustration of integration is found in learning to typewrite. At first the typist must pay strict attention to the letters on the keyboard, but with practice she can type words as such without conscious attention to each letter. Learning to type also illustrates how differentiation and integration by successive alternations combine to produce growth and development. We have first to separate and distinguish each key. Then we integrate these separate movements into word units. Now each word has its own distinctive muscle pattern, but later we integrate word patterns into phrase patterns. When we speak of learning

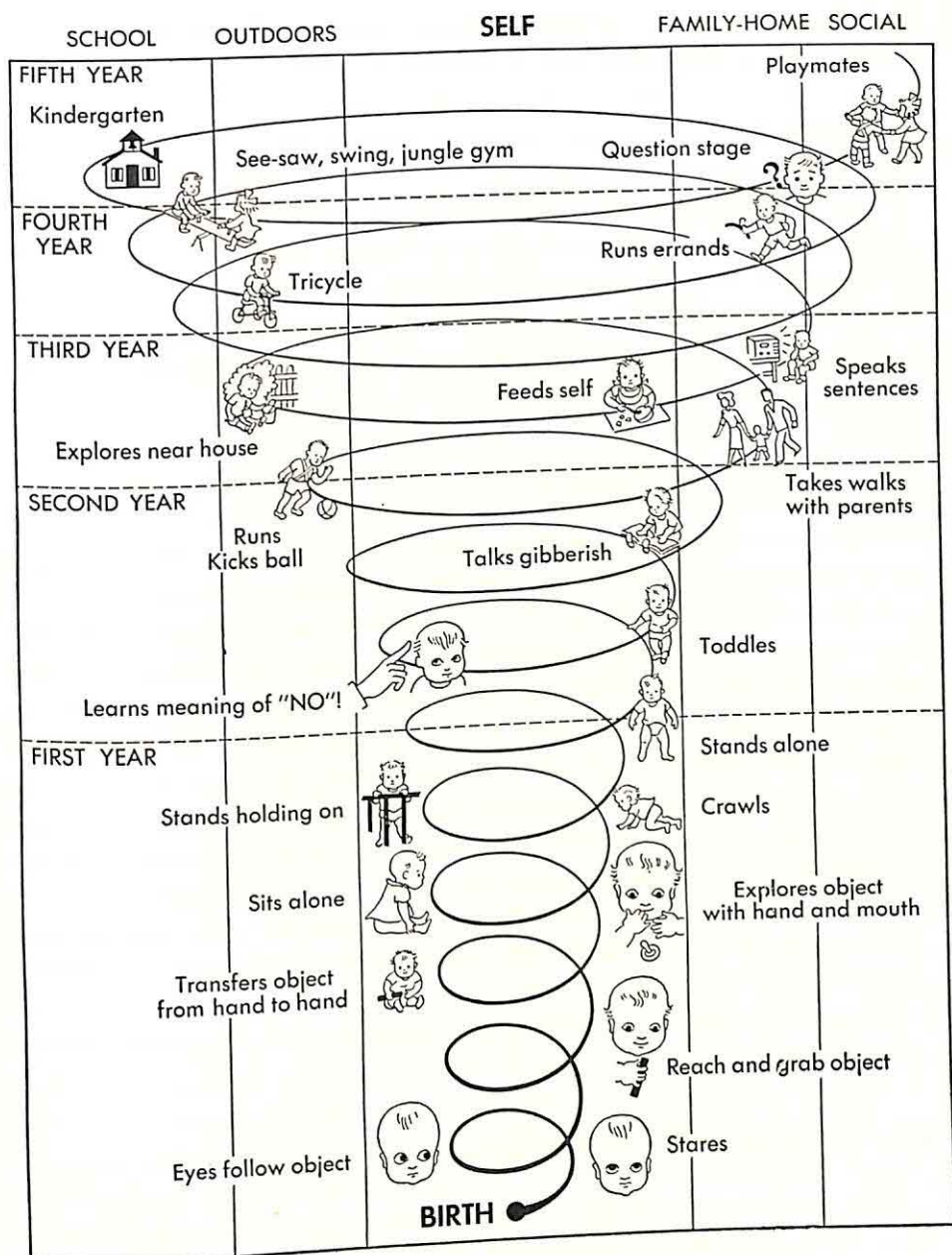


FIGURE 4

THE GROWTH CYCLE. (Redrawn by permission and reproduced through the courtesy of Dr. Arnold Gesell and the Clinic of Child Development, Yale University.)



Courtesy of Metropolitan Life Insurance Co.

ILLUSTRATION 8

To what level of maturity must a child have attained to complete the above activity? What achievements are involved?

have attained a given level of maturation for a specific learning to occur. Just as a child cannot walk or talk until he is mature enough, so he cannot learn to read or to understand a school subject until he is ready. Although parents frequently demand that a child be permitted to enter school as soon as possible, there is considerable evidence to show that starting school in advance of the child's maturation level is not only undesirable but actually detrimental to the child.

For the same reason one cannot develop a talent or skill until one is sufficiently mature. Art, music, athletic skill, and mechanical aptitudes must await maturation before they can be translated into efficient performance. In addition, interest in a certain area will not be developed until the person is able to perform the activity, and hence interest and maturation are closely allied. One is not ready to play a piano until one can manipulate the keys.

How important is heredity?

We hear it said on many occasions that "blood is thicker than water." In the so-called Dark Ages of Europe heredity was considered tremendously important in determining what a person could hope to accomplish in life. Those of royal blood were, of course, special individuals, and often were believed to hold their offices by "divine right." The feudal lord of the manor exercised a severe control over the serf; a knight had to be of aristocratic or "gentle" birth, meaning that his gens or ancestry was a requisite for his knighthood.

Today we speak of chromosomes and genes instead of "blood," and we learn from biology that the genes, "the living molecules," are the real determiners of heredity. The science of genetics has shown how heredity operates and has explained why we are both like and unlike the other members of our family. We should remember, however, that heredity is the product of what parents have *themselves* inherited, and that nothing they have "acquired" during their lifetime can be transmitted to the child through heredity.

The more a trait or characteristic is physical the more apparently important is heredity: we can see how eye and hair color, height, and kind of muscles a person has are inherited traits, but that such abilities as intelligence (see Chap. 10), artistic or musical aptitude, and mechanical ability are hereditary is harder to explain. While some psychologists dis-

pute the inheritability of such abilities, it would seem that various inherited factors play a fundamental role in their subsequent expression. The genes clearly influence later behavior. No coach can make an all-American out of inferior or average athletic ability as such. Above average strength, reaction time, and physical coordination are among the prerequisites for the demanded performance.

It is only logical to assume that the closer individuals are in their relationship the more genes, or heredity, they will have in common; individuals unrelated by heredity have much less chance of receiving the same genes as those belonging to one family. Yet we must always consider the fact that members of any one family also share a common life, that is, they are likely to share a common environment.

What is meant by environment?

There are various ways of classifying kinds of environment. Environment means the surroundings of the organism, that is, the external surroundings. Sometimes an internal environment is mentioned, such as that of the embryo in his mother's womb. If the mother is lacking certain chemicals in her blood stream, the embryo can be malnourished; yet this is externally environmental for the embryo. Historians and sociologists have classified environments as good or bad, friendly or hostile, favorable or unfavorable, and so forth. Attempts have been made to show the influence of the physical environment on the behavior of a race or a nation. Toynbee, for example, believes that the environment can provide the challenge for the building of a given civilization, and hence can be thought of as a stimulus: an easy and comfortable environment, for instance, does not produce a new civilization, while a "hard" environment is a greater stimulus to achievement.

The physical environment, without doubt, is important in the physical growth and development of an individual. For instance, people who live at high elevations develop greater lung space, a compensation for the scarcity of oxygen in their atmospheres. It has been suggested that the youth of California, due to a more favorable diet and the beneficial results of the sun, are becoming taller and heavier than youth in other parts of the United States.

Psychologists have found themselves locked in heated and often bitter dispute about the relative potency of heredity and environment in human

behavior. However, what has been styled the "nature-nurture" controversy of the 1920's and 1930's has now lost much of its ardor.

Is heredity more important than environment?

Heredity, important as it is, cannot explain all behavior. Each of identical twins, although coming from the same ovum, has its own identity and uniqueness, although they are very alike in appearance and intelligence. This apparently holds true even where the identical twins have been raised in approximately the same external environment (9).

Environment cannot explain all behavior, either. Since heredity does not simply exist in an environment but *interacts* with it, the individual is the product of *both* his heredity and his environment, and both factors are always present. For example, each of a person's traits is the product of the genes, and with the environment of which it is a part. Genes would not develop without a suitable environment, and if merely thought of as physical cells they would perish. The development of any trait implies a continuing interaction between the series of the genes and their environment.

Because man is a biological organism as well as a social organism, we cannot ignore the differences in physical heredity, since the differences may well determine his social reactions. For instance, a person with a better "sound box" in his throat, more lung capacity, and truer hearing capacity may potentially be an excellent singer, yet how much of the social environment will be utilized and how much interest will be shown in singing are not entirely determined by the physical factors themselves. The ego, or self, will be important in the final decision and will play a vital role in the ultimate success of the person. As we shall see, the ego is developed by both personal and social factors, and the resulting personality structure is the product of both the heredity and the social environment. Therefore, man's behavior stems from his heredity and its interaction with the environment. While the physical factors must always be kept in sight, the social or environmental factors are likewise always present and exert tremendous influence on the physical or biological ones. Mental disease and delinquent or criminal behavior, for instance, are not determined by either heredity or socioeconomic status alone, but are found in all groupings. Fuller has summarized this neatly: "Heredity is the capacity to utilize an environment in a particular way" (10).

Is there any relationship between inherited body build and behavior?

Are people *by nature* aggressive, mild, jolly, taciturn, mean, or generous? Ever since the days of the early Greeks, attempts have been made to relate man's behavior to his body build. More recently Kretschmer and Sheldon have sought to show the relationship between body build and personality structure. Sheldon (11) has given us an interesting series of studies in this connection under a procedure called "somatotyping." Subjects are photographed and measured in the nude, and are then classified according to a scale of physical features.

According to Sheldon, there are three primary types of body build: the endomorph, the mesomorph, and the ectomorph. Each is the result of the domination of the body by an embryonic layer corresponding to one of the above three types. The endomorph is the relatively fat type of person, with roundness and softness and the digestive viscera or bodily insides as the distinguishing features. This type is also called *viscerotonic*, with a personality that is friendly, good-natured, relaxed, and home-loving. The mesomorph shows a squareness and hardness of body, with many prominent muscles and broad shoulders. Obviously he is the athletic type, and his temperament is known as *somatotonic*. Aggressive, always ready for action and danger, he is an emotional extrovert, and does not seem to be greatly concerned about hurting the feelings of others. The ectomorph is delicate and fragile, with small bones and slight muscles. He is called *cerebrotonic* and is characterized by thriftiness, lack of social aptitude, and like Cassius, he "thinks too much." We must remember, however, that there are many intermediate gradations in these three types in the majority of persons.

Apparently there is some relationship between body build and personality, but various other and important factors also are operating, so that we can declare that the human personality is considerably more than the physical structure of the body. These factors will have to be studied before we can attempt to describe behavior.

SUMMARY

In this chapter we have been concerned primarily with introducing the student to some of the ideas (concepts, notions, and theories) to be used in explaining human behavior in the remaining chapters of the book.

In seeking an answer to the complex question of what is human behavior, we began with a consideration of what is an organism and what is a stimulus. We said that the concept of stimulus includes any form of stimulation impinging on the organism, from external or from internal sources. Because it is to its advantage to do so, the organism selects and organizes the stimuli and responds by what appears to it to be appropriate reactions. Both perception and attention are involved. In the process of perception the organism seeks to maintain a state of physiological and psychological equilibrium that is normal for it, and this condition has been called homeostasis. What is normal, however, may be more than return to the previous state of balance.

Since behavior is the product of heredity and environment interacting, it is impossible to separate them in the description of behavior. The psychological development of the individual organism, then, is the result of heredity, maturation, and learning. All these factors are essential.

In order for the student to follow intelligently the rest of this book, it would be advisable that he know the meaning of each of these terms: organism, tension, homeostasis, conflict, stimulus, response, perception, attention, reflex, emotion, normal, abnormal, heredity, environment, differentiation, integration, and maturation.

Why the organism perceives the stimulus in the way it does and why it responds to the stimulus as it does will be more specifically developed in the succeeding chapters. As Köhler has said, there may be a great deal of "unknown land" between stimulus and response.

PROJECTS FOR RESEARCH AND DISCUSSION

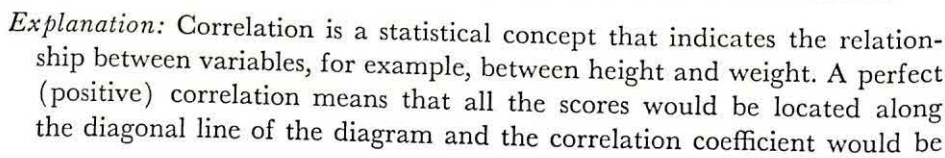
PROJECT I

Topic: A young ape and a young child are reared together in a human environment.

Assignment: Read W. N. and L. A. Kellogg, "The Ape and the Child," in Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart & Co., 1949), pp. 75-88. (Film: Ape and Child Series: Part 1—19 min. silent; Part 2—18 min. silent; Part 3—18 min. silent; Part 4—17 min. silent. 1932. Can be secured from Psychological Cinema Register, Pennsylvania State College, Pa.)

1. How could the ape learn in the same psychological environment as the child?
2. In what ways was the ape superior to the child? Explain.
3. In what ways was the child superior to the ape? Explain.
4. Which factor was the more important in this study, heredity or environment? Justify your answer.
5. What were the authors' conclusions?

Topic: A pictorial representation of the concept of correlation



1.00. A low correlation means that the scores are widely scattered, and the coefficient would be low, as .30 or .20.

Projects to Do in Class

1. Draw a circle around all the scores shown on the diagram and then *estimate* the correlation coefficient shown here between intelligence and vocabulary.
2. Would you expect ordinarily to find a high correlation between such variables as (a) intelligence and weight, (b) vocabulary and reading ability, (c) mechanical ability and athletic ability? Justify your conclusions.
3. Have someone measure your standing height in inches. Have someone measure your reach in the following manner: Stand erect with both arms outstretched sideways; measure in inches the total span from the tips of your middle fingers. Estimate the correlation coefficient between your standing height and reach.

PROJECT III

Topic: The lie detector

Assignment: Read Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart and Co., 1949), pp. 258-60.

Questions for Class Discussion

1. Explain how a polygraph or lie detector operates?
2. Using Illustration 10, identify the various operations.
3. Should the results be admitted as evidence in court?
4. What practical value has a lie detector?
5. Why, actually, is there no such thing as a lie detector?

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- GRAY, G. W. The great ravelled knot. In *Outside Readings in Psychology*, HARTLEY, E. L., BIRCH, H. G., and HARTLEY, R. E. New York: Thomas Y. Crowell Co., 1950, No. 13.
- MCGRAW, M. Later development of children specially trained during infancy. In *Readings in Child Psychology*, W. DENNIS (Ed.). New York: Prentice-Hall, 1951, pp. 199-223.
- MORGAN, C. T., and STELLAR, E. *Physiological Psychology*. 2nd ed. New York: McGraw-Hill Book Co., 1950, Chap. XVI.
- WHEELER, R. H., and PERKINS, F. T. *Principles of Mental Development*. New York: Thomas Y. Crowell Co., 1932, Chaps. II and III.

6

The Springs of Behavior

THE NATURE OF NEEDS

*What is a behavioral situation?
How shall we classify needs?
Are there instinctive needs?*

BIOLOGICAL NEEDS

PSYCHOGENIC NEEDS

*Are emotions motives?
How useful are the emotions?
Are there psychogenic needs?
Do psychogenic needs come from the self or others?
Is there a hierarchy of needs?
How are needs related to goals?*

PRESUMABLY if an organism were in perfect balance it would do nothing. Organisms are never in such a state, but they do act as if they were trying to achieve it. In other words, the homeostasis we read about in the preceding chapter seems forever to be disturbed and on the way to being restored.

The springs of behavior, therefore, can be regarded as disturbances of homeostasis, and such a disturbance in its broadest and most general sense (which does not distinguish wants, needs, and motives) is called motivation—it put the organism into action. What, then, are the factors that disturb homeostasis?

THE NATURE OF NEEDS

Deficits. The organism may actually lack or believe that it lacks food, air, liquid, a sex object, warmth, sympathy. Deficits may be either physiological, that is, an absence of physical substances of one kind or another, or they may be psychical, that is, an absence of experiences of one kind or another. In either case deficits may be regarded as objective or subjective. The difference between these two is important but subtle. If the chemist finds that my blood lacks calcium, the deficit is physical and *objective*; on the other hand, if I feel that I cannot live another day without a new automobile, the deficit is experiential and *subjective*. As far as behavior is concerned, it is the *perceived* and *felt* deficit that moves us to action. Knowing whether or not these experienced deficits are reflections of "real" deficits, that is, objective ones, is useful if we are trying to change people's behavior. Thus we might try to convince a person that the felt need for a new automobile is not a real lack and can be abandoned without harm to himself or, presumably, to anyone else.

Objects that promise to remedy perceived and felt deficits, in the language of Kurt Lewin, have positive valences (1), and they inspire approach, or *adient* behavior. This means that these objects look attractive to us and the achievement of the object promises pleasure.

Irritants. The organism may be disturbed, not by lacking something but rather by the presence of something that is causing pain or discomfort: for example, excess waste products in the body, diseased tissues, foreign bodies of various kinds, enemies, guilty thoughts, and uncomfortable memories. Obstacles of all sorts are incitements to us to attack them, remove them, or get away from them. In other words, they lead to avoidance, or *abient* behavior.

What is a behavioral situation?

At any given moment the conscious human organism finds itself in a *situation*. There are all sorts of ingredients in a situation: The situation has certain characteristics that we perceive through our senses (Chap. 8). It also has certain patterns or designs (Chap. 9). But fundamentally we tend to see in the foreground of any situation those features and those patterns which *promise* good or *threaten* evil. Our needs, our goals, our

aspirations are like rivulets of water seeking the most direct channels to the sea. They organize their own routes by making a bargain with the terrain they traverse.

A behavioral situation is, we may say, a perceptual field in which the participant is more or less clearly aware of the need and possibilities of response on his part.

To understand a person's behavior, therefore, it will be necessary to know: (a) What deficits or irritants are operating on him. Since some of these, as we shall see, are not conscious deficits or irritants, that is, are not perceived at all, the diagnosis may be difficult and intricate. (b) How the situation is perceived by him. (c) The relation of what he does to comply with the demands of the situation. (d) What he *thinks* are the demands of the situation.

How shall we classify needs?

No two textbooks on psychology agree on how many different needs or even how many types of needs there are. H. A. Murray (2) lists twenty-two different *psychogenic* motives in addition to a number of *biogenic* ones.¹ Maslow (3), on the other hand, groups them all into five categories. Accordingly, no one classification has achieved general acceptance by psychological writers.

One might ask why this is so. The answer is that needs are not fixed, but are transformed and even created by the habits, thoughts, and imagination of human beings. About all we can do is note the general sort of action men undertake and try to find some generalized need that would account for their undertaking it. For example, men gather seashells, shiny bits of sand, stamps, coins, and what not. It is natural to attribute all these varied acts to some need for "acquisition."

Does it matter very much whether we have a system of classifying needs? Does it matter very much whether we can agree on which system of classification to use? It would help if we could reduce the great variety of human actions to as few needs as possible, and it would help us to understand each other and psychology books more easily perhaps if we all used the same names for the same needs. For the present we shall have

¹ By "biogenic" is meant a need having its origin in the life processes of the body; by "psychogenic" we mean having its origin in the personality demands of the organism.

to be content with as simple a classification as will help us to make sense of human behavior.

Maslow's needs. Maslow distinguishes five kinds of needs:

1. *Physiological needs.* These have sometimes been called tissue needs. They refer to deficits or irritants within our body tissues. They signal a disturbance of the mechanisms by which the body is maintained in balance. Hunger, thirst, air hunger, fatigue, excess of waste products, and injury to the bodily tissues are the common examples of this class of needs.

2. *Safety needs.* These refer to our desires to be free from injury and threats of injury. Note that under safety needs would have to come the safety of both the body and the personality. Here we are beginning to deal with subjective as well as objective judgments of needs. If my job is threatened by the pink slip my employer hands to me saying that I will be out of my present job in two weeks, then that is a fairly *objective* judgment about my danger. But if my boss does not speak to me in the morning and I begin to wonder whether I am about to be fired I am making a *subjective* judgment with which other competent observers might or might not agree. But whenever the organism perceives itself as threatened it will feel moved to do something to avert, destroy, or elude the danger.

3. *Love needs.* These needs have to do with emotional security. They refer to the uneasiness we experience when we suspect that we do not command affection. There is a need to feel wanted for one's own sake and not as a payment for services rendered or expected. It is not hard to understand why this becomes such a basic need in human beings. The physiological needs and the safety needs of even the infant are ensured by love or at least by the absence of hostility. Should the powerful adults withdraw their love, "reasons" the child, what would happen to the food supply and the other pleasant and necessary services to which infants so quickly become accustomed? We shall note on many occasions how powerful is this need for love, especially when it assumes diverse and subtle forms in adult human life.

4. *Esteem needs.* There seems to be an inveterate desire on the part of human beings for outward proof of their own worth. Under simple conditions, where physical prowess or the number of seashells is the measure of worth, such proof may not be needed. One fights enough opponents to get a true measure of one's worth or one counts the seashells. Where personal worth is measured in many different ways—money, power of

various kinds, charm, birth, reputation, achievement—it is not always easy to know whether one is making the grade or not.

Consequently, we are anxious for signs and symbols of esteem, such as membership in organizations, medals, prizes, titles, praise, grades, and other marks of esteem (cf. Chap. 13).

5. *Self-actualization needs.* While yearning for the esteem of others, we are nevertheless unhappy unless we can also secure our own. Each man has his own secret measure of this worth. He alone can judge whether he is achieving to capacity. Of course he may be mistaken in this. He may overestimate his capacity, and he may underestimate his achievement. Level of aspiration depends on a host of factors: what people expect of us; what we think they expect of us; what we think is possible and desirable (4, 5) (cf. Chap. 14).

A level of aspiration represents the goals toward which a person is striving. Lewin (6), in discussing level of aspiration, has said that the successful individual sets his immediate goal a little above his past achievement, and even if the ultimate goal is too high, the next-sought goal is kept relatively close to where the individual is at the moment, thus permitting a realistic achievement. On the other hand, the unsuccessful person either sets his goal too low, that is, below his past achievement, or too high above his ability. Repeated failures can lower a person's level of aspiration, especially failures that occur because others have demanded that he aspire too high. Furthermore, a high aspiration level in one field may not mean a correspondingly high one in another (7). Despite these variations, there is no doubt that to actualize his potentialities is one of the fundamental needs of every individual, although this does not mean that he will always respond to this motive or respond to it with all the vigor at his command. Instead, men underestimate their capacities or are unhappy because they are not achieving at the level they judge themselves capable of, even though they are doing nothing to remedy the situation.

What Maslow calls the self-actualization need is related closely to what Plant has called the need for adequacy (8), because achievement, however defined, is the basis of genuine adequacy. Adequacy is to be distinguished from emotional security. For, whereas we can be loved whether or not we are *worthy* of being loved and thus feel secure in that love (frequently bestowed with puzzling lavishness by mothers on black sheep sons), we cannot feel adequate without being convinced that we are worthy of love.

Are there instinctive needs?

An *instinct* is allied with a reflex (see Chap. 5), since basically it is a series of reflex acts. Psychology has for years been troubled by this term, especially as to how it is to be applied to human behavior. A true instinct is unlearned. Therefore it is present at birth, although some time may be required for it to come into operation. Once it does come into operation, it does so in fairly complete and perfect form and, as a rule, when the organism is mature enough to need it. Stone (9) found that male rats reared in isolation until sexual maturity exhibited normal mating behavior in the presence of sexually receptive females. A true instinct is also present in all members of the species. It must mean some series or pattern of movements—nest building rather than coughing or sneezing. We find such instinctive patterns among the lower animals: salmon spawn only in the fresh water of their birth; spiders, insects, and birds build their nests in precise ways; rodents exhibit hoarding activity; certain animals hibernate seasonally, and many birds migrate or make homing flights in the same manner year after year. In the lowest classes of animals, such as insects, instinct governs nearly all behavior, probably because insects do not live long enough to learn very much.

What about human beings? William James listed twenty-eight human instincts. William McDougall prepared an extensive list of human instincts which included curiosity, gregariousness, or the "herd" instinct, acquisition, and mating. We shall see (Chap. 12) how Freud emphasized the idea of the id as the source of all instinctual impulses, particularly the sexual instincts and the life and death instincts. According to Freud, the instinctual energies cause unpleasant tensions which the person seeks to release. The instinctual demands of the id strive to become conscious, and the ego attempts to protect itself from these demands by the process of repression. The familiar Oedipus complex (see Chap. 12) is an important "cultural" instinct, being universal, inherited by the id, and representing a residue of older family environments.²

Modern psychologists are reluctant to use instinct to explain human behavior for the following reasons:

1. It is difficult to prove by experience that any human behavior pattern meets the rigid requirements for a true instinct. It is particularly

² It is true that Freud later expressed doubt about his theory of instincts, yet the orthodox Freudian is still an instinct psychologist.

difficult to rule out the possibility that learning had a part in making a behavior pattern universal for the members of a species. Moreover, the anthropologists are busy unearthing evidence that seems to cast doubt on the claim of any behavior pattern to being universal for mankind.

2. It has been impossible to get psychologists who do believe in human instincts to agree on any given set of them.

3. Even if we do have some instinctual drives or needs, the way in which each culture group (and, indeed, even each individual) varies the methods of satisfying such a need makes it more important to study how such variations occur than to name the instinct that is common to all of them.

Nevertheless, the search for a structure of human nature goes on (10). We may find that the basic needs of mankind are not true instincts, but rather more general strivings and capacities. Without such uniformities, psychology and sociology as sciences would be impossible because we could make no generalizations about men that would not be completely trivial.

BIOLOGICAL NEEDS

The biological drives are the primary tensions and consist of such activators as hunger, thirst, sex, elimination, fatigue, air starvation, and certain types of pain. When the organism is deficient or irritated it grows restless and seeks some measure of satisfaction for the deficiency or demand. The energy of the body is continually being reduced and must be restored. Oxygen, food, and fluids are being used and must be replenished, wastes must be eliminated, and sleep and rest are needed to overcome fatigue. Pressures within the body, caused by endocrine gland secretions, also serve to initiate tension, and the organism seeks to do away with or avoid painful sensations and those which would injure it. As long as the tension is experienced the drives persist.

Hunger. The thwarting of these drives is soon made known to the organism. If they are unsatisfied, the organism dies. However, the complete explanation of them still eludes science. Hunger, for example, has been shown to be experienced by the organism even when there are no stomach contractions, although generally it can be demonstrated that these contractions set in when the stomach is empty (11, 12).

Thirst. If men cannot dispense with food, they certainly cannot for any length of time go without water. While men have lived thirty to forty days without food, they could not get along without water for a tenth of that time. As for oxygen, even a few minutes without it is a long time indeed.

According to Cannon, water is the "nucleus of thought" for desert peoples and likewise, one might suppose, for people beset with frequent floods (13).

Cannon also points out an interesting difference between the physiology of food-taking and the taking of liquids. Food stays in the stomach for an appreciable time, so that, if enough is put in, we get the sensation of satiety, or fullness, at which time, if sensible, we stop eating. Liquids, on the other hand, pass out of the stomach so quickly that the natural psychological "enough" is slow in coming. That is why it is so hard to convince the drinker of intoxicating beverages that he has had enough.³

Sex. Unlike the needs for food and water, the need for sex activity is neither so continuous nor so immediately critical for the life process—of the individual. Accordingly, the sex drive is more generally thwarted. But it is at its core a physiological drive and it has bodily mechanisms that control its occurrence and intensity, despite the overlay of learning and experience that often hide these bodily origins.

We know, for example, that the general strength of the sex drive in males is due to hormones secreted by the testes (androgens) and in the females by a secretion from the ovaries (estrogens). The injection of these hormones makes a difference in sexual behavior. Secretions from the pituitary gland also are believed to regulate the sex drive. It is also held that destruction of the cerebral cortex in rats reduces the intensity of the sexual drives (18).

³ The experience accompanying thirst is familiar, and anyone who has suffered an extreme form of it knows that its insistence is unmatched. What is the cause of this sensation? Two theories are held to explain it. One is called a specific theory, and holds that dryness in the mouth and throat causes the sensation and not the general level of fluids in the body as a whole. The evidence for this view seems to be that substances which anesthetize the mouth and throat or moisten them without raising the water level of the body relieve thirst. Since animals seem to get temporary relief from thirst sensations in this way, it is argued that the thirst sensation is caused by a local condition (14).

Other experimentation, however, seems to favor the theory that the general deficit of water in the body sets up the thirst sensation. Cannon holds that we have the sensation when the salivary glands are so deprived of fluid by the general water deficit that they can no longer keep the mouth and throat moistened (15, 16, 17).



ILLUSTRATION 9

These three people are triplets. Are there any inherited physical characteristics among them? What environmental factors could have caused the noticeable differences among them?* How old do you think they are?***

* The woman, upper left, lived in America; the others, in central Europe.

***85

Picture from Franz J. Kallmann, *Heredity in Health and Mental Disorder* (New York: W. W. Norton, 1953), by permission of the author and publisher.





Associated Research, Inc.

ILLUSTRATION 10

Keeler Polygraph in operation, showing subject in foreground and examiner at desk. The Polygraph is mounted in the desk. Shown on the subject are the pneumograph chest tube, the blood pressure cuff, and the galvanograph suction electrode. The men in the photograph are masked out for the sake of anonymity.



Courtesy LIFE Magazine
© TIME, Inc.

ILLUSTRATION II

This illustrates how in a complex civilization motives combine and merge. Here we have romance, marital love, parental love, intellectual values, and economic considerations so mixed up that it would be difficult to tell where one began and the other ended. Are all these motives reducible to one or are they to some degree autonomous and independent of each other?

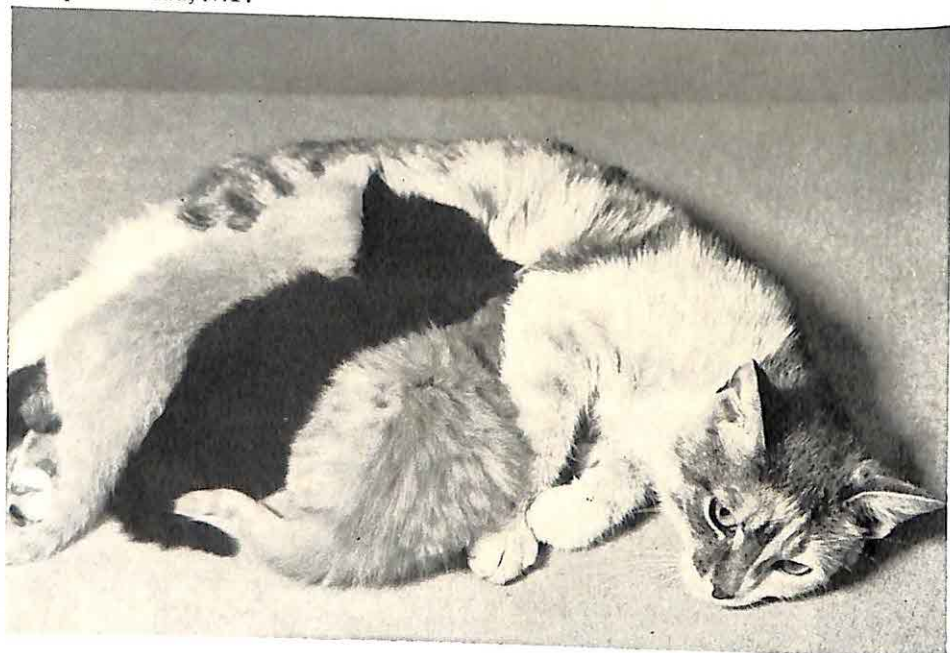


Philip Gendreau, N.Y.

ILLUSTRATION 12

What primary needs are present in these animal families that are present also in the human family on the preceding page?

Philip Gendreau, N.Y.



Progesterin, another secretion, plays an important role in the reactions of the uterus during the monthly cycle of its activities in the female.

We shall note in the next chapter, however, that these physiological bases and mechanisms in the sex life of the human being are only the seeds of the vast plant of experience that grows from them. Nevertheless, it is always important to seek as much knowledge as possible about the bodily mechanisms that underlie sex. Many of the personality abnormalities and emotional disturbances that are due or believed to be due to sexual maladjustments might yield more readily to treatment if we could find the precise mechanism that caused such a maladjustment or contributed to it.

Homosexualism. Homosexualism is a case in point. This is an old and pathetic affliction in any culture that frowns upon it. In ours it certainly is frowned upon and most violently, according to Kinsey (19), by the very group of males who confess to practicing it most frequently.

The treatment of homosexuality by hormones has been disappointing and, because homosexuality is so often a matter of learning, conditioning, and causes yet unknown, treatment is still long, expensive, and unpredictable.⁴

Other drives. Air hunger, fatigue, sleepiness, warmth, cold, pain, tensions and pressures in the bladder, intestines, and colon all produce sensations to apprise us of disturbance in bodily homeostasis. These may not be the most glorious of human activities, but they are certainly the least dispensable.

Air hunger assumes a new importance with the development of extremely high-altitude flight and subaquatic travel. Sleepiness and fatigue can be used by perverted men for the brainwashing of victims. Pain is not only a notice of distress, it is almost indispensable to the diagnosis of disease. To avoid pain, physical and psychological, is the most reliable of all human motives.

There is no general agreement as to the number of these physiological, or primary, drives. Tolman (20) speaks of the appetites, consisting of a maternal (or suckling the young) drive, a nest-building drive, thirst, hunger, sex, a general exploratory drive, a rest (or sleep) drive, a general

⁴ The need for a sex object of one's own sex has been explained as an arrest of sexual development at the stage of one's life when boys and girls "naturally" dislike each other, or as a regression to this stage after a disastrous experience with the opposite sex. It may also be thought of as a product of having been conditioned to receive sex pleasure from one's own sex and to reject it from a member of the opposite sex.

activity (or exercise) drive, a urination and excretion drive, a play drive, and an aesthetic drive. He classifies the aversions into cold-avoidance, heat-avoidance, danger-avoidance, and obstruction-avoidance.

Murray (2) lists thirteen biogenic motives, which depend on bodily needs and are related to lacks, outputs, and harms to the body (21).

In discussing these primary drives, Mowrer (22) claims that when an organism experiences a drive—for instance, thirst—it also develops an “emotional component,” which could be called a fear drive. This amounts to anxiety; in other words, the organism has a fear of the painful situation to be experienced if the drive remains or is increased. Thus it is both thirsty and afraid. The latter, says Mowrer, is actually more of a motivation than the thirst. This is certainly the case with human beings. We plant crops, not because we are hungry but because we are afraid we shall be.

The purest operation of biological needs is seen in the activity of the infant. An infant is concerned only with satisfying his most immediate physical needs, and it is only as he grows and develops that other motivations appear. Having no conception beyond satisfaction of these needs, he gives the appearance of being entirely selfish in his activity, yet this must be understood in the light of his perceptions, which are clearly not those of an adult.

PSYCHOGENIC NEEDS

Thus far we have described the tensions that impel the organism to some kind of action to remedy bodily deficits or to remove bodily irritants. By a rough analogy we can also think of the whole personality, that is, the whole experience of the person, as liable to deficits and irritants. Similarly, if we think of the personality as trying to maintain homeostasis, we can understand much of its behavior as an attempt or a symbol of an attempt to restore this balance.

Are emotions motives?

The distresses of the personality or the prospects of its success are signaled to us by experiences we call emotions. Fear is an awareness of prospective injury to our bodies, to our security, or to our esteem. Anger is the impulse to destroy what is perceived as the cause of the threat to our

well-being. Anxiety is fear without a clear perception of the cause of that fear. On the other hand, satisfaction is the emotional accompaniment of achievement and joy is the perception of success beyond expectation.

But in addition to being signals or reports of how matters stand with us, these emotions are themselves pleasant and unpleasant. Hence we shall see in the next chapter that they can come to be needs on their own account. We yearn to be joyful, carefree, amused, and we shun being annoyed, angry, and fearful. For the most part, these feelings are not free floating; they are always tied to activities of the whole organism. The attempt to get joy without the kind of activity that has joy for a natural accompaniment results in emotional and personal disorder. It becomes a search for pleasure that is perpetually frustrated and perpetually frustrating. The attempt to experience joy without achievement and to avoid fear without courage are what the clinicians find every day in their unhappy patients.

It should not be concluded from what has been said here that emotions are no more than signals or reports. At the moment they occur they are more or less strong pervasive states that impel us to a course of action, such as running from an angry dog, attacking our insulters, or throwing our arms around the nearest bystander when we win a grand prize.

How useful are the emotions?

Emotions play their part in homeostasis in that they aid in the adaptation of the organism to various situations. Blood pressure goes up when we climb, body temperature adjusts to meet external changes in temperature, and in an emergency situation there are mobilizations of body chemicals and eliminations of distracting forces to assist in the protection of the organism (13).

It is as if our viscera—the most primitive parts of the body—took over and got ready to deal with a situation directly and forcefully. Because of this, psychologists are accustomed to regard emotion as a disorganized state in which the person loses his head, so to speak. But Leeper points out that a man ready to leap on his attacker is not disorganized, but is highly and often effectively organized in a particular way. Not the way he might be organized if he thought matters out calmly, but organized anyhow (23).

Such external manifestations of emotional reactions as weeping, laugh-

ing, sighing, and blushing are, as Alexander (24) declares, evidences of specific tensions. Their purpose is a relief of the tensions. Thus we laugh heartily when the big, strong man falls down, because such a person has been long identified in our minds as a bully or at least has been envied for his strength. When the teacher makes a mistake or is embarrassed by something in the classroom, the pupils will laugh, since unconsciously they resent being dominated, and this is a convenient way to relieve their pent-up hostility. Hysterical weeping is likewise a manifestation of either repressed emotions or because this is a way to meet a situation in which we feel we cannot succeed.

Yet with all these genuine and manifest values of emotions in life, their dangers are no less genuine. Our strong emotions are apparently designed for direct and vigorous physical action upon objects that threaten us or promise to please us. Whenever such direct action is possible for us, our emotions are, no doubt, a great help. But suppose such direct action is not possible? Suppose we cannot attack physically the sources of our frustration, and suppose we cannot seize whatever we need for our comfort and pleasure? What do we do then about the mobilizations of energy within our bodies that are so characteristic of strong emotions?

In civilized life we speak of controlling our emotions. We mean more strictly that we have to control the actions that these emotions impel us to perform. And the more civilization the less opportunity for direct expression of our emotion and the more need for control.

We shall have many occasions to note, moreover, that in human beings at least emotional reactions are subject to conditioning. This means that anger, fear, and love may be connected with events and behaviors that in ordinary life might not occasion such reactions. Misplaced, exaggerated, and inappropriate emotional responses are the symptoms of the neurotic personality.

Are there psychogenic needs?

As we have noted previously, Murray lists over a score of needs called psychogenic, which literally means that their origin is not in the body tissues but in the "psyche," or experience, of the person. It may be, as some psychologists believe, that all experiences have their origin ultimately in bodily drives and that they never quite lose their bodily character. Thus Masserman (25) says:

Finally, even these "social strivings" e.g., desires for prestige, financial gain, favorable environment for a future family however displaced, rationalized or sublimated, can be traced to more nearly elemental sexual or parental drives, and lastly, needs for sustenance, shelter, protection from injury and such physiologic determinants as emerge when the core of our living is stripped of its multiple-faceted social adaptations and verbal embellishments.⁵

Similarly, Freud (26) holds that all feelings of sympathy, friendship, and so on, are at their source connected with sexuality, while chewing gum and the smoking of cigars or cigarettes can be regarded as transformations of the pleasures the child gets from stimulations of the mucous membranes of the mouth (27).

Others say that at the root of the pleasures derived from collecting stamps, art objects, and other articles lies the pleasure of the infant in retaining feces (28).

G. W. Allport (29), however, argues thus:

The pursuit of literature, the development of good taste in clothes, the use of cosmetics, the acquiring of an automobile, strolls in the public park, or a winter in Miami, may first serve, let us say, the interests of sex. But every one of these instrumental activities may become an interest in itself, held for a lifetime, long after the erotic motive has been laid away in lavender. People often find that they have lost allegiance to their original aims because of their deliberate preference for the many ways of achieving them.⁶

This transformation of a means into a new goal of experience Allport calls "functional autonomy," and we shall see in the next chapter how this principle serves to complicate, refine, subtilize, and, in short, humanize the fundamental biological and social drives of mankind.

For the moment, however, we can postpone the controversy as to whether all drives remain physiological in *quality* as well as in *origin* and ask ourselves whether the psychogenic drives come from *within* the personality or from the impact of others upon the individual's personality.

Do psychogenic needs come from the self or others?

Whether a need is engendered by a demand from others (or by what we think is a demand from others) or a demand that we make upon our-

⁵ Jules H. Masserman, *Principles of Dynamic Psychiatry* (Philadelphia: W. B. Saunders Co., 1946), p. 106.

⁶ *Personality: A Psychological Interpretation* (New York: Henry Holt and Co.), p. 197.

selves depends on the stage of development of the personality under discussion.

For example, the need to collect, repair, clean, and preserve things, which Murray (2) calls "conservance," may be a fundamental need of all organisms. Certainly we observe some of it in animals and infants. But at a somewhat later date these needs may be the result of the expectations of a fussy and orderly mother, and still later they may be the demands of a somewhat rigid ego upon itself.⁷

On the other hand, the needs of superiority, inviolacy, dominance, deference, similitude (the need to imitate and agree with others), autonomy (to achieve independence or self-government), contrariety (to be unique), aggression, abasement, blamavoidance, affiliation, rejection, nurturance, succorance, cognizance, and exposition (2) are impossible to conceive without putting the person into relation with other persons.

Does this mean that we cannot distinguish needs that come primarily out of the personality structure of the particular person from those that issue primarily from the culture in which that person lives?

It would be nonsensical to confuse these two, for if all our needs came from our culture, how could we account for the bewildering diversity of behavior among the individuals within the same culture and even within the same subculture? Why, for example, does one sister in a family satisfy her need for dominance by trying to boss her younger siblings, while another exerts a real dominance simply by being charmingly fragile? Why does one man express his aggression against a co-worker by starting a fist fight with him, while another in the same plant will express his aggression by contriving to get his victim fired in disgrace?

There is nothing really impossible in talking about the needs of the personality and the needs inspired by the group if we keep in mind that at any given moment:

1. The person perceives the situation through the lenses of his total personality up to date. The gloomy man will see the situation as dark and suspicious; the cheerful soul, as bright and sunny. The former will

⁷ Of all the psychogenic needs listed by Murray, only six could conceivably be experienced apart from one's reaction to the demands and expectations and perception of other persons. Thus, play, acquisition, conservance, order, retention, and construction are needs that one might feel compelled to satisfy even without the presence of others. They represent certain patterns of activities with things and not necessarily with other people.

feel the need to be cautious; the latter, to be gay and bouncy. The personality, or ego-structure, is like a filter that selects from the situation that which threatens its prosperity or promises to enhance it. When a number of individuals are placed in a similar situation, the differences in their perceptions of it and their responses to it are, therefore, due to the differences in their personality patterns.

2. At any given moment, the personality pattern of the individual is being built and furnished by his environment, especially by that part of his environment that is made up of human beings. These groups, as we shall see in Chapter 14, make demands upon him, and how he responds to them is registered indelibly, although not always legibly, in his personality.

For example, an adolescent boy goes to a dancing party. He asks one young lady to dance and is refused; he asks another, with no happier results; he overhears a few young ladies tittering as he passes them. He perceives the situation as one in which he is being ridiculed. He feels humiliated and vows never to give women a chance to ridicule him again. It is hardly surprising that his personality after the dance has a design that it did not have prior to that evening. Let us suppose that he had a timid personality before this experience. It now has become timidity flavored with hate for a specific class of objects. His personality pattern having been shaped by his relations with others, he will face the next situation with a new or certainly a somewhat different pattern.

Is there a hierarchy of needs?

Is there such a thing as a hierarchy of needs? Maslow (3) believes that there is, and has sought to formulate a hierarchy on the theory that higher needs emerge as more basic needs are satisfied. We listed these needs on p. 132 of this chapter.

According to this theory, satisfying a lower-order need permits the person to devote more time and energy to the satisfaction of higher needs. The more stable and fortunate the person's society, the more he can seek the satisfaction of higher needs. Maslow puts it simply: "Man lives not by bread alone except when his stomach is empty." During World Wars I and II many people were so pressed to satisfy the basic needs of food and safety that they had to relinquish their needs of love, esteem, and achievement.

On the other hand, Cameron and Magaret (30) are of the opinion that specific hierarchies of needs are not universal, but result from the various individual patterns of social learning for a given individual. A person, for example, who has secured economic status may now find that recreation is a more important need in his living. It seems just possible, too, that a person without a pressing biological need may indulge that need for some other reason: he may indulge in sexual promiscuity because he thinks that he is not loved.

We can perhaps paraphrase Maslow's theory by saying that the need which will operate and dominate the behavioral field is the one that is perceived as most likely to be thwarted. It is the fear that a need will not be satisfied that in most instances is the deciding factor in choice and action.

In any person at any moment the various needs arrange themselves in some hierarchy and unless conditions change drastically this hierarchy becomes constant. The poor man worries about money, the sick man about his health, the young about the future, the aged about the lack of one. Indeed, a good deal of what we mean by a person's personality is precisely his hierarchy of needs.

How are needs related to goals?

If needs are the springs of behavior, goals are the directors that channel and harness the energy of the springs. A goal is a prevision of what the person judges will satisfy the pattern of needs activating him at the moment. Goals consequently can be long or short range. If I am cold and wet, my goal is to find shelter. If I want to prevent coldness and wetness for myself and family, my goal may be to own a house.

All organisms have needs, only intelligent ones have goals or purposes. Needs are more uniform than goals. Both needs and goals are "motives" although they operate somewhat differently. A need disturbs us, a goal directs us or beckons to us. A goal is caused by a need and is sustained by a need—but not necessarily by the same one. For example, your goal in going to college might have been engendered by the need of prestige, but your persistence in doing your college work may be due to this need or to a felt need not to disappoint your parents.

SUMMARY

The springs of behavior may be thought of as deficiencies or irritants either of the bodily tissues or of the psychic "tissues" that make up the human personality. Either type of deficiency and irritant gives rise to imbalance, or what can be called a disruption of homeostasis. This, in turn, induces a tension which the organism tries to reduce by seeking certain objects or by getting rid of them.

How to sort out the various types of deficits and irritants presents a difficult problem of classification. Shall we classify them as innate *vs.* learned, individual *vs.* social, bodily *vs.* psychical, conscious *vs.* unconscious, simple *vs.* complex? There is no agreement among psychologists as to the one proper classification. Our general conclusion was that, however we decide to classify needs, they were finally generated within the individual as he perceived a situation to be promising or threatening.

After examining the question of instinctual needs, we discussed at some length the various biological needs and the appetites and aversions that develop as means of satisfying the fundamental bodily urges.

Under the general heading of "psychogenic" needs we raised the question of whether all human needs are "nothing but" the simple biological drives dressed in respectable language or whether they represent really new qualities of experience despite their homely origin, that is, whether they can achieve functional autonomy.

As to the difference between social and individual origins of human needs, we pointed out that this difference was a genuine one, if we remembered that all needs arise from the personality needs of the individual, but that personality is woven and formed from moment to moment by the way we respond to the demands of others upon us. Thus we can explain both the uniformity of human needs and the wide diversity in the way they are perceived and satisfied.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: The strength of biological drives

Assignment: Read the section on physiological drives in Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed., New York: Rinehart and Co., 1949), pp. 187-92.

Questions for Class Discussion

1. How can the psychologist measure the strength of a drive?
2. Describe the methods used by both Moss and Warden.
3. Can we say that one drive is stronger than another? Why?
4. What happens when there is a conflict in drives?
5. What place, if any, does learning play in the biological drives?

PROJECT II

Topic: The psychology of hoarding

Assignment: Read "Hoarding" in Valentine and Wickens, *Experimental Foundations of General Psychology*, pp. 200-203.

Questions for Class Discussion

1. Describe the experiment of Hunt, Schlosberg, Solomon, and Stellar.
2. Is there a hoarding instinct?
3. Can you give some reasons why a miser would want to hoard money?
4. Give some examples of how an adult may have acquired the need to hoard.

PROJECT III

Topic: A study of the cultural effects on Indian infants of the Southwest

Assignment: Read Wayne Dennis, "Does Culture Appreciably Affect Patterns of Infant Behavior?" *Journal of Social Psychology*, 1940, 12, 305-17, reprinted in Newcomb, Hartley, and Others, *Readings in Social Psychology* (New York: Holt and Co., 1947), pp. 40-46.

Questions for Class Discussion

1. Describe the care of infants among the Hopi and the Navajo.
2. What conclusions can be drawn regarding behavior differences between these infants and white infants?
3. What cultural and racial differences, if any, are revealed by this study?
4. How can you account for cultural differences among adults?

PROJECT IV

Topic: A study of social conformity in everyday life

Assignment: Read Floyd H. Allport, "The J-Curve Hypothesis of Conforming Behavior," *Journal of Social Psychology*, 1934, 5: 141-83, abridged

in Newcomb, Hartley, and Others, *Readings in Social Psychology* (New York: Holt and Co., 1947), pp. 55-67.

Questions for Class Discussion

1. Explain how obedience to traffic signals can result in a J-curve.
2. How can biological needs be related to conformity of behavior?
3. If we have an unselected sampling, should we not expect a normal probability curve?

PROJECT V

Topic: How satisfaction of a need may result in a new need

Questions for Class Discussion

1. Why does a child who has just been fed continue to suck his thumb?
2. Why does a man who has worked hard for most of his lifetime to amass a fortune suddenly decide to become a philanthropist?
3. Why does a college student who has had a straight A record for two years decide that henceforth he will not open a book?
4. Why does a young executive who has just received a promotion feel that the old automobile that has given him such good service must now be replaced by a newer and more expensive model?
5. Mr. X earns \$10,000 a year but complains that he can barely make both ends meet. When he earned \$5,000 not long ago, he had the same complaint. If he should achieve a salary of \$20,000 a year, would he cease to complain? Explain your answer.

RECOMMENDED READINGS

- DENNIS, WAYNE. *Readings in the History of Psychology*. New York: Appleton-Century-Crofts, 1948, Chaps. 4, 33, 52.
- . *Readings in General Psychology*. New York: Prentice-Hall, 1949, Chap. 5.
- HARTLEY, E. L., BIRCH, H. G., and HARTLEY, R. E., *Outside Readings in Psychology*. New York: Thomas Y. Crowell Co., 1950, Chaps. 10, 11.
- MASLOW, A. H. *Motivation and Personality*. New York: Harper & Brothers, 1954, Chap. 5.
- SAPPENFIELD, B. R. *Personality Dynamics*. New York: Alfred A. Knopf, 1954, Chap. 2.

SHERIF, M. *An Outline of Social Psychology*. New York: Harper & Brothers, 1948, Chaps. 2, 3.

VALENTINE, WILLARD L., and WICKENS, DELOS D. *Experimental Foundations of General Psychology*. 3rd ed. New York: Rinehart and Co., 1949, Chaps. 10, 11, 12, 13.

The Elaboration of Needs

ELABORATION OF FOOD NEEDS

*Do we eat for nutrition?
How do food needs become proliferated?
Why invite the boss to dinner?*

ELABORATION OF SHELTER NEEDS

*Why do we build elaborate homes?
What do elaborate homes symbolize?*

ELABORATION OF SEX NEEDS

*Why is sex so important a drive?
How is sex related to romance?
Can adolescents be in love?
Can poetry take the place of sex?
Can we sublimate the sex drive?
What is a wholesome attitude toward sex?*

ELABORATION OF OTHER NEEDS

*How are aggression needs proliferated?
What is the aesthetic need?
Is aesthetic activity a sublimation?
What does the aesthetic experience express?*

IN CHAPTER 6 we learned that the springs of behavior in their most simple and universal forms are deficits and irritants, both physiological and psychological. These cause tensions which the organism tries to release or relieve.

In the animal world, particularly among insects, many species display a remarkable ability to relieve these tensions *without learning*. Birds do not learn to build nests, nor do bees have to be taught the complex processes of their life in the hive. Presumably this ready-made response was just what was needed for a particular environment, and so long as this equipment and the environment remain adapted to each other we can expect the birds and bees to carry on as they have for millennia.

For this inborn perfection of their *responses* these creatures pay the price of rigidity. These beautifully adapted animals do not change their *wants* very much. For example, bees feel certain tensions whenever they are deprived or attacked, but bees rarely change their needs. They relieve the tensions, and that is the end of the matter—or of the bee.

ELABORATION OF FOOD NEEDS

Can we distinguish among drives, needs, wants, and the like?

It has often been remarked that the human infant is almost completely helpless at birth and takes an unconscionable time to become self-reliant and independent. But, as John Dewey has shrewdly pointed out, the infant by his very helplessness can get others to relieve his tensions (1). In return for these adult services during the long period of infancy, each of us has to learn to heed the demands of these adults or, in any event, to be mindful of them.

We are impressed with how much more the average human adult can do than the infant. It is no less impressive to compare adult *wants* with infantile ones. This multiplication of needs and wants is perhaps the outstanding mark of human existence. Animals of other species, to repeat, keep their wants fairly constant. A dog may learn to love and miss beef-steak and the companionship of his master. Or he may in dreams re-enact exciting pursuits of automobiles and cats. But, by and large, the stimuli to a dog's action remain closely tied to his physiological needs.

The human being begins life with physiological drives—the deficiencies and irritants of the tissues—and to his dying day he will have to make his peace with them, but it is not long before his *wants* far outdistance his tissue *lacks*.

In the previous chapter, as in most psychology texts, the terms “drive,” “need,” “want,” and “motive” were used almost interchangeably, but it may be helpful to distinguish them.

Needs and tensions. A tissue lack or an irritant is objective, but a psychological one is less so. That a body lacks calcium or has a splinter in it can be verified. But how can we verify a man's complaint that he *lacks* love or that he is irritated by the neighbors? We can be mistaken about our lacking calcium and love, but there are ways of correcting mistakes about calcium that are not available to correct mistakes about love. Hence a good part of mental health consists of *not* imagining lacks and irritants that do not exist objectively. A good part of mental healing consists in helping the patient to make his *felt* needs match his *real* needs.

Whenever a real need or irritant exists, the organism experiences a tension or pain that drives it to do something about relieving it. We know, however, that certain diseases can progress quite far before they cause pain, and perhaps it may be the same with psychological diseases. As we saw in the previous chapter, lacks and irritants differ in their immediate importance to life. At some point, however, they signal to the organism that something is wrong.

Appetites. When a tension is accompanied by the desire for a specific object, then we have an *appetite*. Thus thirst usually is the sign of a lack of water in the tissues, but this distressing feeling does not of itself cry out for milk, water, a mixture of water and milk, or any other liquid. The desire for a particular liquid to quench thirst is an appetite.

We may take this as a rather important principle: *A large number of kindred objects can be used to satisfy any of our physiological drives; preferences for one species of object or for some particular object are learned appetites.* Whereas physiological drives are inescapable demands for the preservation of the individual or the species, or both, the object of any *appetite* is never necessary in the same sense. Without food, we cannot live; but without caviar, no matter how fond we may be of it, we can live—somehow. Without shelter, most human beings probably could not survive, but they can survive in caves, igloos, thatched huts, and in skyscrapers. Without sex activities, the species would not long survive, but those young men and women who imagine that they could not possibly love anyone but Joe or Millie are almost invariably mistaken.

Nevertheless, there is another principle that is no less important: *the strength of an appetite is not measured by its importance for survival.* On the contrary, once learned, it gains what has been called functional autonomy, that is to say, a strength of its own. A woman's desire for a fur coat is not appreciably diminished by her knowledge that she can

survive without it. Nor is our aversion to eating rats and cats removed by the assurance that the flesh of these animals furnishes about the same nutritive elements as do other meats.

These two principles are of supreme importance in our attempt to understand how human behavior has been proliferated so profusely and often so "unnecessarily."

May we say the same sort of thing about our psychological drives? The wide variety of behaviors to which people resort in allaying the need for affection, security, and status seems to indicate that we may.

Motives. A motive is the name we give to that for the sake of which an organism acts. When we set out to get food *because* we are hungry, or *because* we want to prevent hunger over the weekend, we say our actions are motivated. This means that we have a motive when we know or think we know what will enable us to reach our goal.¹

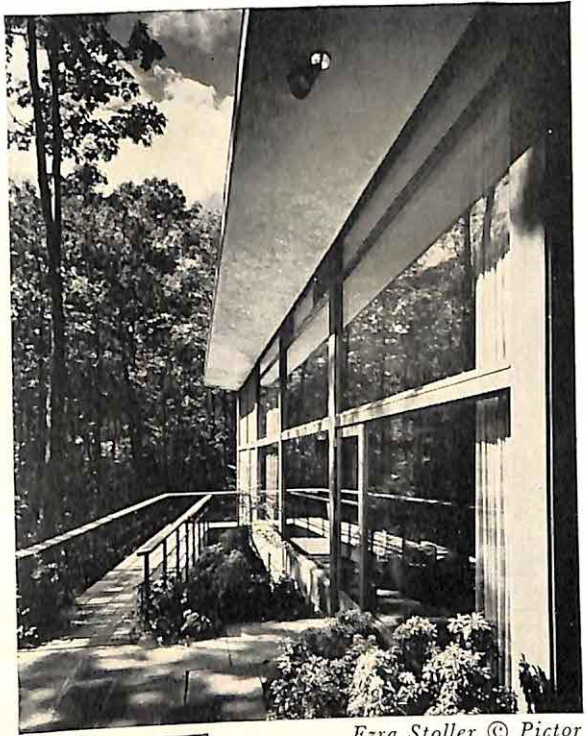
Do we eat for nutrition?

Why do we eat? Obviously to maintain life, and to some extent the "wisdom" of the body itself takes care of this.

In a review of the studies concerning food habits of animals, Young (2) says that when some component of diet which is needed for the animal's growth or activity is removed a "pattern of deficiency symptoms" appears. Yet these deficiencies are not drives. He declares that "an established feeding habit may persist regardless of bodily needs," but that new habits also tend to be established which do satisfy the needs. The strength of the animal's drive for food apparently is related also to the palatability of the food itself.

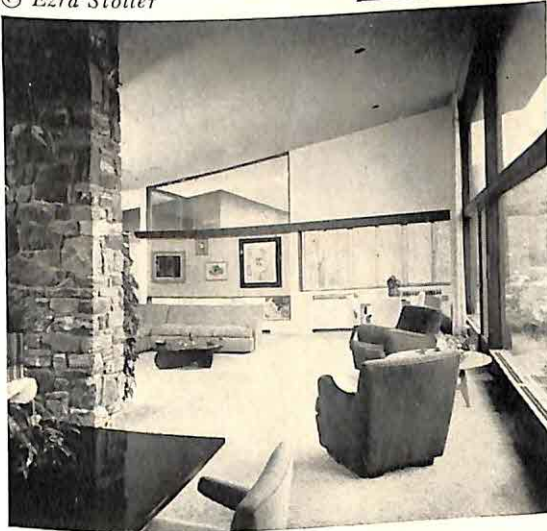
The lack of certain "basic" foods may lead to a definite striving to obtain specific food elements. Salt is considered to be of great value by some African natives; blubber is highly prized by the Eskimos. Morgan and Stellar (3) state that body needs are the basis for food preferences, although other factors such as learned preferences and aversions also may operate. "Cafeteria" experiments have sought to test the "wisdom" of the body in eating. The best known of these is the experiment by Davis (4), which found that newly weaned infants, when presented with a

¹ This interpretation would make motivated behavior equivalent to goal-directed behavior. All such behavior would include needs, desires, appetites, but would also include foreseeing an end and a knowledge of how to approach that end. Unfortunately, there is no agreement on this meaning, so the student is not urged to adopt it.



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Pictures courtesy of Katz, Waisman, Blumenkranz, Stein, Weber: ARCHITECTS ASSOCIATED

ILLUSTRATION 13

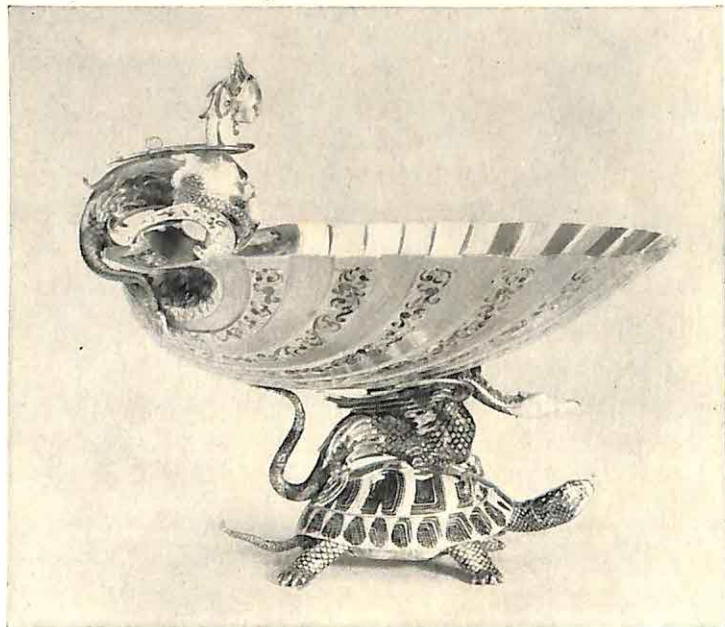
Many values other than the primary one of shelter are embodied in this house. Scientific advances are expressed in both materials and building techniques. Every effort is made to satisfy social and aesthetic motives as well as to provide physical comfort.



ILLUSTRATION 14

The Willendorf Venus (*above*) sprang from a primitive religious need; the Cellini Cup (*below*), from a sophisticated secular need; yet both are aesthetic objects. What is the basis of your appreciation of each?

Metropolitan Museum of Art



variety of foods, made wise selections by themselves as far as nutritive values were concerned. On the other hand, adults do not always select the most nutritive foods available, and often eat quite inferior foods. Attitudes, socially created, may account for this, but the "wisdom of the body" is not complete enough to warn us of poisons or nutritionally inferior foods.

Beach (5) has shown that severe hunger actually changes what the person perceives. To a starving man and to a satiated man a bakery does not even smell the same.

Clearly, however, if men had always been forced to live in dire fear of starvation, they would have had neither the time nor the energy nor the inclination to do anything save to seek, eat, and hoard food. And "food" is the right word here. Under constant threat of starvation anything edible would be prized, just as it is prized during famines.²

Had this always been the case, civilization would never have been born. Fortunately, somewhere at some time men had enough to eat so that they could think of something else—even if no more than about special foods, methods of preparing them, serving them, and making their supply more reliable.

Once this occurred, men no longer ate for nutrition alone. In the United States in the present era little eating is done solely for nutrition. We have become a nation of dieters fighting valiantly, not against starvation but against our appetites.

How do food needs become proliferated?

Because food is the earliest and perhaps the most consistent of our tension relievers, it is not surprising that it should stand out as a figure against the background of other experiences. Infant feeding, whether by breast or bottle, also brings with it *usually* the pleasant warmth of the mother's body or the soothing effect of her voice.

Furthermore, the value that solicitous parents place upon the child's proper eating and their concern and delight when his responses are appro-

² The effect of semistarvation in prisons during World War II has been described by Markowski (6) and Niremberski (7), and these studies show how the learnings of civilized life can be washed away by the insistent cravings of hunger. The effects of semistarvation were studied under *controlled* conditions by Keys (8). He found that after twenty-four weeks of drastic food deprivation, the human subjects suffered not only physiological effects but also a loss of interest in effort and in their fellow human beings of either sex.

priate convinces even the stupid child that there is something important in food other than the assortment of flavorful experiences his taste buds provide.

He learns also that certain foods are preferred in his family and that they are served in certain ways, at certain times, and in a certain order. Desserts come last; holidays and Sundays bring special treats. In some households there are seven dietary combinations—one for each day of the week—so that anyone forgetful of the calendar need only to look at the table to know what day of the week it is. Like all rigid systems, this one takes the surprises out of life but, on the other hand, it provides a measure of reassurance. If one dislikes cabbage and knows that it is served only on Wednesdays, then one need not fear encounters with it on the other six days of the week.

Turning for a moment to the "infancy of the race," we note here also the importance of food and of the eating act. Cannibalism is generally a feared practice and in our culture a revolting one. It is disturbing enough to have our goods and possessions the object of greedy regard by unscrupulous people without having our bodies viewed as potential food objects. The breaking of bread together, on the other hand, is an almost universal ceremony of friendship. In our own culture an invitation to dinner is invariably regarded as a friendly gesture.

Food is tied up with tribal taboos and the notions of ritual cleanliness. Some tribes forbid the eating of the totem animal or restrict the eating of it to certain periods.

Let us, however, get back to our infant. Having learned the food ways of his own family, he comes in time to learn those of his culture group, that is, the group with which he has constant intercourse. He learns in this way that other families have slightly different food ways and so do other culture groups. In adolescence he seems to reevaluate, rearrange, and reorganize his food patterns. New flavors are tried, food idiosyncrasies are not uncommon, and eating out becomes a favorite occasion for all sorts of social experimentation.

This explains why in our culture the average person has by adolescence formed rather clear patterns of food preferences. His repertoire of food appetites is huge when compared with the milk diet of infancy. More important than this is the way in which the eating activity becomes clothed with the values of all the other areas of life, and how these in turn pay their respects to the physiological drive of hunger.

Why invite the boss to dinner?

A young man who would like to move a little faster on his way up in a big firm may invite the boss and his wife to dinner. For this strategic occasion his wife will invest not only a good part of the weekly budget in expensive and palate-tickling foods, but she will also spend money or time for a floral centerpiece. She will bring out the best linen, the best china, and hitherto unused wedding gifts. The house will be cleaned from top to bottom, with special emphasis on areas that might be scrutinized by the visitors. The children will be maneuvered into sight for just the time it takes to exhibit their charm and no longer. If the wife survives all the preliminaries, she will don her best dinner gown and contrive an appearance that dazzles the boss, but not Mrs. Boss, and inspires gratitude in her husband.

In other words, much time, money, and effort will go into enhancing the *aesthetic* possibilities of the occasion. If our hostess can manage it, the dinner will be a beautiful occasion as well as a nutritive one. If possible, the host and hostess will be witty, charming, and interesting during the meal. Their *intellectual* treasures will be paraded along with the fine china, linen, and silver. In some homes the dinner will be preceded by a grace, brief or long, thus reminding the participants of the religious implications of the event.

We could go through all of life's values and note how they become involved in the dinner party, but enough has probably been said to make the point that we have traveled a long way from physiological drives and tissue deficiencies. Not, mind you, that these were completely banished, for everybody was probably physiologically hungry by the time dinner was served. The eating was, however, simply the *occasion* for the display and the realization of many other values by the side of which nutrition faded into relative insignificance.

It may be objected that we do not have dinner parties every night, and that for the most part we eat to be nourished. If this were really the case, then why would food untidily served deaden an even vigorous appetite? Why is it that most of us find it distasteful to watch people eating gelatinous foods with their hands? Why do we object to dirty tablecloths in restaurants? Why do so many of us find it difficult to eat alone, if we have been accustomed to eating with companions? Why is it that men and women who in their childhood were happy with good but plain or

even coarse food can within twenty years come to be so fastidious that only the most meticulous chefs and choicest vintners can satisfy their palates?

The answers to these questions are neither simple nor easy, but it is clear that most of us do not eat simply to live. Eating has become the node or focus for a cluster of activities—a Gestalt, we might say—in which many values are blended. In other words, eating brings certain pleasant feelings, and these have become so interwoven with the act of eating itself that even our viscera are unable to distinguish what is needed for nutrition from what is desired for the other sorts of satisfactions.

Thus the man who refuses to enter a dirty-looking restaurant may perceive it as incompatible with his social and economic position. The pain he anticipates from such a loss of esteem is far greater than the ordinary hunger pangs. But if it becomes fashionable to frequent such eating places, certain virtues are found to justify its strange attraction, and our man no longer is so squeamish. The word goes around that Joe's place has the most wonderful oysters or spaghetti although "it looks like a hole in the wall." Or a man may perceive himself as standing out in sharp contrast against such a drab background and be pleased by the prospect. Or it may seem to him that the frequenting of a low-priced restaurant—although he could afford a much more expensive one—reflects his fundamental democratic impulses.

In any event, although there are many reasons why a given man might or might not enter this restaurant, few of them have anything to do with nutrition or with health.

What started out as rather simple physiological lacks or needs have become proliferated into a host of appetites. They are complex appetites that aim not only at certain kinds of foods and flavors but also at certain sights, sounds, odors, textures, companions, signs of prestige and status, certain feelings of many kinds.

These complex appetites are now felt as needs, and the frustration of these needs is experienced as painful. Put in another way, we can say: When food-getting is no longer a precarious business, it is not only a maintainer of physiological life but also the bearer of signs and symbols of many other goals and values that are highly prized in the culture. These signs and symbols become needs and impulses to action just as urgent as are the simple tensions induced by hunger or the simple aversions to bitter-tasting substances.

Why haven't we all the same attitude toward food?

Nevertheless, we do occasionally find gluttons, at one end of the scale, and persons to whom food is nothing more than the relief of a physiological drive, at the other. Gluttony, or the pleasure derived from eating for the sake of eating, is probably symptomatic of severe deprivation. Rats that have been deprived of food will hoard more than those that were not so deprived (9, 10). On the other hand, constant or frequent eating may be a means of relieving tensions other than those caused by hunger. Obesity in children has been found to be due in many cases to feelings of anxiety and insecurity (11). Why should this be so? Why should a wife genuinely overcome by the grief of losing her husband or child put on weight in the midst of her grief?

There might be observers unkind enough to doubt the genuineness of the grief, but they might very well be wrong. In the depth of sorrow the victim casts about for a relief of the pain. If eating has always been a pleasurable experience, it may now be resorted to as a short-lived but real relief from pain. Moreover, to a housewife food is easily available, so that the persistence of the grief makes eating a constant temptation.

Some gluttons are victims of another type of desire. Men or women who enter pie-eating contests clearly do not do so because they like to eat pies. It is rather a form of exhibitionism that suggests itself more readily to those who like to eat than to those who are not enthusiastic feeders. Some men establish reputations among their fellows for their food capacity, and if a man can get a reputation in no other way, even this avenue will not be despised. Although our judgment about people who are distinguished for their sensual excesses is not flattering, deep down we are probably a little envious because for most people moderation in the matter of the appetites is a matter of necessity rather than choice.

The gourmand is not the gourmet. The former is the French term for the glutton—the man who likes to eat, and to whom it matters very little what is eaten. The gourmet, on the other hand, is a connoisseur of flavors and flavor combinations. The gourmet emphasizes the aesthetic elements in the sense of taste; the gourmand delights in devouring the edible.

Because eating is a periodic activity, it is no wonder that the opportunities for it to become part of many behavior patterns are numerous. We can expect a wide range of individual differences. The parent's attitude toward the eating activities of the infant, the happiness or lack of

it at the family dinner table, the degree of concern about food, and many other factors will determine the individual pattern of combining eating with the other activities of daily life.

ELABORATION OF SHELTER NEEDS

A similar pattern of proliferation can be sketched for shelter. From the simple physiological desire to get rid of the discomfort of excessive heat, cold, or wetness, we develop in a complex civilization the desire for homes, offices, and public buildings that go far beyond protection from the elements—although they never cease to provide such protection.

Why do we build elaborate homes?

The purchase of a home is probably a family's largest single investment. A good slice of a man's income goes for rent or shelter. Why does man work so hard for protection from the elements?

One answer is the desire for comfort. Elaborate heating devices and air-conditioning units and even more elaborate controls for them do undoubtedly keep us at a psychologically more comfortable temperature with less effort on our part. Dishwashers, washing machines, vacuum cleaners, new materials, and so on, all decrease the amount of work needed to maintain the home.

However, comfort is a relative term. One man's comfort is another's luxury. To a woman who has been cooking over a fireplace, a wood stove would be a great improvement, and one who had never had running hot water would not quibble too much whether it was heated by coal, oil, gas, or electricity.

We learn, therefore, to regard certain comforts as necessities, that is, to regard their loss as definite discomforts. This is an important point. The fact that as a child a person lived quite happily in a house without central heating does not mean that he can live happily under such conditions as an adult.

Men will do a great deal to maintain a standard of comfort to which they and their families have become accustomed. That is why, other factors being favorable, a living standard will continue to rise once it begins rising. Luxuries thus become necessities for an increasing number of the population, and the success of large-scale machine industry in producing

these comforts at relatively low cost is, of course, the marvel of the twentieth century.

Naturally, there is a price. It is a kind of slavery—a kind of dependence on comforts that makes sacrifice and hardship difficult—even when they are clearly imperative. Statesmen can never be indifferent to the discomfort tolerance of their own people or the peoples of potential friends and enemies. Furthermore, after long periods of dependence on machines and electric current we tend to lose the skills of simpler types of living. Even hardy souls are helpless when their homes are deprived of electricity if all their cooking, heating, cooling, lighting, pumping, communication depend on electric current.

What do elaborate homes symbolize?

Yet, after we have given due weight to our inveterate love of comfort, it is still doubtful that men build such elaborate shelters merely to satisfy desires for comfort, any more than women treasure fur coats merely because they are warm.

A big house, an expensive house, a house in an exclusive neighborhood is more than a shelter, more even than a comfortable shelter. It is, perforce, a symbol of success, of power, of status.

Many a comfortable home has been sold because it was too old-fashioned, because the neighborhood had "run down," or because the fashionable set had moved elsewhere. The same is true of house furnishings. Old furniture is a sign of poverty unless it is genuinely antique, in which case one pays large amounts of money for objects that a previous generation had discarded in favor of more fashionable tables, chairs, and so on.

Like food-getting and food-taking, shelter becomes part of the whole value system of a person's life and gives rise to needs that are far from the desire to be protected from excessive heat, cold, or moisture.

It becomes the occasion for the expression of aesthetic values because a house can be beautiful. It can take on religious significance; often a house or a home is blessed. It becomes the symbol of the family, the householder's castle, the basis for taxation, and the backbone of the construction industry.

In our own culture there are imaginative, inventive, and creative people who spend their professional lives in designing new comforts and new

beauties for the home. They are multiplying our wants by giving us comforts and beauties we had never experienced before. And perhaps this is the greatest difference between our culture and a primitive one. The wants of a primitive culture may change, but they do so very slowly; ours proliferate with great rapidity so that, what one generation fights for and sacrifices for, the next calmly takes for granted.

ELABORATION OF SEX NEEDS

By this time the student may be impressed by the great distance traveled by such physiological drives as those of food and shelter from their bodily origins to their proliferated forms in human life. The contrast is even greater when we turn to the sex drive. First, however, comes the question: Is sex a physiological drive at all? The question arises because satisfaction of the sex urge is not essential to the individual organism's life, however indispensable it is to the life of the species.

There is little doubt that sex has a physiological basis. Certain glandular secretions play an important role in the arousal and inhibition of sex activity (see Chap. 6). And there is equally little doubt that this activity is directly related to procreation.³

Why is sex so important a drive?

If the individual organism can persist in good health for long periods without sexual activity, why does sex play so great a part in civilized life?

We have already noted that deprivation of any need creates not only a tension but also a fear that the deprivation may be indefinite. If the deprivation is prolonged, it gradually assumes top place in the hierarchy of our

³ Nevertheless, one study reports that women reach the peak of *conscious* sexual desire somewhat after the end of the ovulation period, that is, the period during which pregnancy can occur (12). But, according to another study, this apparent discrepancy between conscious sexual desire and pregnancy is belied in the *unconscious* life of the woman. Benedek and Rubenstein (13) found that during the ovulation period the unconscious problems of women centered upon desire for the opposite sex. After ovulation the women being studied were irritable and somewhat unstable, and when the uterus was undergoing the complex changes that make it ready for pregnancy, although fertilization may not have occurred, the women's unconscious interests seemed to turn on their own comfort rather than to sexual activity. Thus at the deeper levels of experience the connection between body chemistry and sex activity is retained even though at the conscious level, because of learning and emotional conditionings of various sorts, this connection may be broken.

conscious needs. So we have part of our answer in the simple fact that no other physiological urge is so subject to deprivation as the sex drive—at least in our own culture.

1. These deprivations are caused by the legal and moral restrictions placed on the gratification of the sex impulse. Legal sex activity is restricted to the married state, and this in turn depends on money, education, and many other factors that have nothing to do with either biology or romance.⁴

We can expect, therefore, that by virtue of actual or feared deprivation we would be a sex-preoccupied people, and this is borne out by our literature, music, theater, and all other art and entertainment forms. Nothing is quite so certain to gain and hold attention as the sexually attractive male or female form, although babies and dogs are held to be strong rivals. Nothing sells so easily as that which promises the individual greater sexual attractiveness, although matters are not always put so bluntly. Any reader who cares to debate this point need merely open any magazine or newspaper and study the advertisements for fifteen minutes.

2. This brings us to the second reason for our preoccupation with the sex impulse. It is that we are constantly being stimulated by sex objects or symbols of sex objects. This is a circular reaction. Concern about sex, induced by feared deprivation makes us strive to be sexually attractive, and as a result a lot of people become attracted. At work, at play, in travel—everywhere one turns—one is likely to be confronted with attractive males or females or some reminder of them. The human animal has no specific period of estrus, or heat; he is subject to stimulation at all times.

3. The third factor is similar to the ones we have discussed in connection with both food and shelter: the sex act becomes the core or node about which patterns of behavior having only a remote connection with sex or even reproduction crystallize.

For example, the love of parents for their offspring, no doubt, is related to the sex act that brought the offspring into being, but the sacrifices parents make, the heartaches they endure, and the satisfaction they occasionally glean from their children are as far removed from sexual activity

⁴ That large numbers of the population are deterred by neither legal nor moral obstacles is common knowledge. A physician specializing in the treatment of venereal diseases (14) estimated that in the city of Chicago alone there were 100,000 women to satisfy the illicit desires of 500,000 men outside the bonds of matrimony.

and pleasure as is the modern mansion from the cave or the cuisine of a fine hotel from the stewpot of the hobo.

Even the marriage state itself, rooted and based on the sex act, soon goes beyond it into money, a home, success, concern, worry, sacrifice. Once sex gets woven into the fabric of all of life it ceases to stand out as its dominant theme.

How is sex related to romance?

The sex drive becomes transformed in even more radical ways. In our own culture we speak of lust, love, and romance and we mean something different by each term. By lust we refer to the physiological sex drive in its "pure" form or as "pure" as it ever is in a human being who has been influenced by long years of learning.

By romance we mean the complex of feelings (a sentiment) the individual experiences whenever he idealizes the beloved object. There is no romance without idealization. This means that we somehow perceive the beloved object as surpassingly beautiful, kind, high-minded, or otherwise endowed richly with those qualities and virtues that we admire. Whether the object *really* has these qualities or has them to the degree we think is not the point here. The romantic attitude or mood is subjective, that is, it is nothing more than the feelings of the person who is in such a mood.

Moonlight, flowers, soft music, beautiful clothes all contribute to the romantic stage setting—in our own culture. When the college puts on a dance or a prom, the committee in charge will provide these romantic props.

Is this romantic mood anything but the sex urge dressed up in respectability? If it is nothing more than this, how are we to explain that sex lust can exist without the romance and that romance often exists without the lust? Swains who put their sweethearts on lofty pedestals are certainly romantic. Lust, on the other hand, pulls objects from pedestals—it does not place them out of its own reach. Men and women who have been married for years try, on anniversaries of one kind or another or on coming upon an old familiar scene, to recapture the romantic mood. Sometimes they succeed, more often they do not. It is sad when one partner does and the other does not. Many a man or woman who has no difficulty in satisfying the physical sex impulse still yearns for romance.

The movie industry and the host of magazines that flourish and prosper in its train are witness to this yearning, and sex deprivation is hardly the explanation for it.

We have here another example of functional autonomy (15). Perhaps it is true, although there is no way of proving it, that, without the feelings aroused by sex desire in adolescence and later, men and women would never go through the idealization that gives us the romantic mood and attitude. But is this the same as saying that the experience of sex desire is identical in *quality* with beholding the beloved through the veil of idealization? This is something like saying that a beautiful tablecloth is nothing but the product of the flax plant—a true statement but not a very enlightening one, no more enlightening than it would be to say that a Parisian creation is nothing more than an article of dress for the protection of the body against the elements. The *quality* of an experience is not necessarily the same as the *quality* of the cause of that experience.

The experience we call love differs from those we call lust and romance. Properly understood, it is not a simple emotion at all, but a sentiment. A sentiment is a complex of emotions organized around some object as a core. Mature love is the name for a complex of behavior that may include: solicitude about the object's health, anger when it neglects that health; admiration for its strength of character; anger with those who, for one reason or another, do not appreciate it; fears as to what may happen to it; hatred of anyone who might try to take it away, and perhaps even resentment that it is less appreciative than it might be. There is also sex attraction, and there may be some romantic feeling as well. But there can be an abiding love, a torturesome love, and a redeeming love, without romance, and when the object of that love is an infant or a friend the sex-attraction element in that love becomes slim indeed.

In other words, sex lust is the symptom of hormone activity in our blood and is as natural as hunger when the tissues lack nutriment and thirst when they are deprived of water. We share this drive with other animals, as we do the other physiological drives. Romance and love, on the other hand, would be impossible in creatures without imagination, memory, and thought. Above all, they would be impossible in organisms that did not have a self-structure in which the tension between the self as it is and as it might be is a dominant factor.

Can adolescents be in love?

If we have caught a glimpse of the way in which the simple natural physiological drives develop into the complex experiences pervading the functions of taking food, providing shelter, and satisfying the sex urge, then we are on the way to understanding one factor in the almost universal conflict between the generations.

The younger we are—in experience—the more imperious desires in their primitive forms are likely to be. For one thing, young people have not yet suffered the consequences of yielding indiscriminately to the promptings of their desires. Their parents have, as a rule, protected them from these consequences. In any event, their health is so good that excesses are tolerated without undue suffering. Thus an orgy of eating that gives the adolescent only a stomach-ache may put his father to bed for a week.

Because the ability to idealize is strong in youth, and because experience has not yet revealed the fragility of some ideals and the exhausting demands of others, youth is incurably romantic—even when it is carefully concealed by an attitude of toughness. The adolescent tends to perceive a situation in terms of clear-cut pluses and minuses, attractions and repulsions. He sees life situations clearly and sharply—and often mistakenly. If his love of the moment is keen, and if he wants to marry her right away, then he cannot see whose business it is but their own.

The same situation is perceived differently by his parents and by the whole generation of which his parents are members. If they see the prettiness of the bride-to-be, they also see her family background and the heartaches that a deep incompatibility between the two families may produce, not only for the parents but for the eager lovers as well. Even if they can, for a moment, recapture their own youthful romantic ardor and the fine disregard for the future that went with it, that romantic glow is dimmed by the knowledge that after the honeymoon more than honey is needed for sustenance and more than moonlight for lighting the apartment. What the son perceives as black and white or, better, as crimson and gold, they perceive as middling gray or an even more somber color.

For these reasons it is often held, Romeo and Juliet notwithstanding, that adolescents cannot be in love even though they are capable of sex desire, sex activity, and romance.

By adolescence, of course, is not meant any fixed chronological age.

Some men never get out of adolescence, and women are reluctant to leave it at any subsequent age. Some men, for example, are as excited about driving trucks, airplanes, and locomotives at forty as they were at fifteen. This invariably amuses the man who really has to drive these vehicles for a living. Some men keep on flitting from one woman to another all their lives—just as adolescents are expected to do.

The strongly structured self, the ability to face and understand reality, the ability to evaluate the ideal—these are all qualities of maturity, and they are all required in mature love. Since adolescents rarely demonstrate these qualities, it is not surprising that adolescents are, for the most part, using the word “love” to cover a mixture of sex desire and romantic feeling in varying proportions.

SUBLIMATION AND PERVERSION

Two terms express eloquently the extraordinary flexibility that physiological drives admit in their satisfaction: “sublimation” and “perversion.” Although applicable to all drives and needs, they are most commonly met with in connection with the drives of sex and aggression.

Can poetry take the place of sex?

It is a fairly well-accepted theory that a great deal, if not all, of the artistic output of mankind is a result of sublimating the sex drive. This theory argues that because this drive is so frequently obstructed by social restrictions, it finds outlets in other activities. When these activities are socially acceptable, we call them sublimations. When they are not socially acceptable, we call them substitutions or perversions.

A sublimation, it is held, changes the quality of the experience, that is, the writing of poetry somehow satisfies the sex urge, but not sexually. A substitution and a perversion satisfy the sex desire by a kind of sexual experience that is neither usual nor socially acceptable (looking at obscene pictures, masturbation, homosexuality).

This usage of these terms is not especially fortunate. For example, if a person who is sexually frustrated takes a 10-mile walk, is that sublimation? It is an activity that, as a rule, society finds acceptable, and the fatigue it gives rise to is not a sexual feeling. Erotic poetry, on the other hand, can be written and read so that the experience is as much sexual as literary.

Perversion can be defined as any sexual activity that varies from that which normally leads to reproduction. Let us leave the morality of such perversion aside for the moment. Psychologically, our primary interest is to understand how sex perversion differs from sublimation as a response to sexual needs.

In one sense, nothing takes the place of the sexual experience, because it is a special kind of feeling that accompanies excitation of the sex organs. Whatever excites those organs directly or indirectly gives rise to a sex feeling—whether it be poetry or obscene photographs. And this feeling is what it is whether caused by one or the other, just as hunger is hunger whether aroused by the sight of filet mignon or a boiled snake's head.

But does this make all poetry sexual in nature? Not necessarily. Granted that artistic activity may be aroused by blocked sexuality, it still is not *psychologically true* that the delight an author gets from turning a fine phrase is identical with that of being stimulated or being satisfied sexually. If poetic feeling is more sublime than sexual feeling, it is because it is different from it. It is a "higher" feeling because it satisfies a wider range of desires than does sexual gratification.

Can we sublimate the sex drive?

It is stated frequently and always earnestly that adolescents ought to sublimate their sex drives until they are in a position to marry. To this end they are urged not only to cultivate the arts but also to take up interesting hobbies, join wholesome organizations, and so on.

But ordinary observation and systematic studies (16) indicate clearly enough that often all adults accomplish is to force the satisfaction of sexual urges into clandestine channels. Some boys and girls inhibit these impulses more than others, depending on the penalties involved and the ideals of the class in which they are brought up (17). Ruch (18) found that the opposite sex was the favorite conversation piece of college students and Shaffer (19) reported that about three-quarters of normal college students report that they have sexual daydreams. We have no reliable data on how much sexual feeling and preoccupation the adolescent experiences, but it must be considerable.

It is true that we cannot have all kinds of experience at one and the same time. While the young athlete is tackling the opposing halfback he

is not having daydreams, nor is the spectator who is cheering him on. If a sexually aroused person is pushed into a nonsexual activity, the sexual feeling, temporarily at least, will be displaced.

This, however, is not *sublimating* the sex urge. It merely distracts the person from satisfying it, from trying to do so, or from thinking about trying to do so. Yet even this is worth while because, in the long run, the adolescent who can be distracted from sex preoccupation will have an easier time of it than one who will not or cannot.

If young people can become genuinely interested in poetry, painting, stamps, Scout work, or any one of a thousand other things, then the activity is satisfying on its own account and is worthy of cultivation, and not because it distracts one from sex thoughts. Obeying any law keeps one out of jail, but it would be a sad story if all of us obeyed the law for this reason only.

Substitutive sex activities like masturbation, reading sexually stimulating literature, and viewing obscene pictures are psychologically bad because they are palliatives and do not give the kind of tension relief that genuine sex activity does. On the contrary, they are likely to lead to reinstatement of the tension in an even more acute form and with increasing frequency (20, 21).

Why are sex experiences so hard to control?

In our culture there is no easy solution of the adolescent sex problem, although the wars and selective service have forced us into experimenting with early marriages on a scale that was undreamed of, let us say, in 1935. The experiment may prove successful enough so that the time gap between the physical and psychological readiness of young people for sex experience and their social and economic readiness can be reduced.

Even then the problem will not be solved automatically or finally. For one thing, the environment is overwhelmingly stimulating. It is sexually supercharged. Too many objects—clothing, entertainment, pictures, stories, music—practically everything is a symbol of sex and can come to be a stimulus to sex feelings.

Futhermore, sex attraction has high prestige value—especially among adolescents. To capture an attractive member of the opposite sex is a sign of success, a means of being admired and envied.

Finally, we learn to stimulate ourselves sexually, both physically and

mentally. Just as sex feelings can give rise to thoughts of sex activity, so can thoughts of sex activity give rise to sexual feelings. Sex feelings become woven into the fabric of all phases of life; hence they are being aroused constantly, even though not necessarily by sex objects.

There is little doubt that by chance trials infants discover that masturbation relieves tension and affords a measure of pleasurable feeling. It is, furthermore, a type of pleasurable experience that he can achieve without the cooperation of anyone else. Because the tension relieved by masturbation is not too specific, it is not tied to any sexual object and perhaps not even to the genitals as such. Any strong tension might, therefore, be relieved by this device, just as the alcoholic in any strong tension situation comes to "need" alcohol for its relief.

If a person has difficulty later in life in finding other ways of satisfying the sexual drive, it is reasonable to expect that masturbation (which has proved "successful" in the past) will be continued. Thus a timid adolescent, a strongly inhibited one—one with strong guilt feelings—may well continue a practice that has long outlived its very doubtful usefulness.

We are told also that certain types of homosexuality can be explained in a similar way. If sex feelings have been repeatedly relieved by a member of the same sex, then under certain circumstances it may be difficult for a person to adopt other ways of satisfying them. Under stress of long periods of normal sex deprivation, when the sexes are segregated, homosexual practices tend to arise. In other words, just as we learn to eat unusual foods when the ordinary ones are absent for long periods of time, so we learn to satisfy sex cravings by whatever objects are available—unless strong inhibiting factors have been set up. Thus food would have to be scarce indeed before some of us would eat insects.

Why is sex activity controlled?

Why does the adult generation put obstacles in the way of the free gratification of the sex impulse? Is it not because such free gratification would interfere with other values that the group regards as worthy of achievement? The group values an orderly family life more than sex gratification as such; hence it tries to confine sexual intercourse within the boundaries of marriage laws. In some societies the respect and dignity of the human person is ranked higher than the pleasure of sex gratification;

hence the sex act is made the object of an idealization, that is, of a flood of romantic feeling, and is often surrounded by religious sanctions and suffused with aesthetic overtones of music and poetry.

If by sublimation we mean weaving the sex impulse into a larger pattern of behavior which gives to the participants values in addition to the pleasure of gratification, then of course sex can be sublimated. Civilized living consists pretty largely on such sublimation. If, however, by sublimation is meant transforming sex feelings into something else, then it is hard to know what this means and how it can be brought about except by distracting the person into some other kind of activity.

What is a wholesome attitude toward sex?

Every so often we tell adolescents that we would like to have them know about sex but that we would like to have them cultivate a *wholesome* attitude toward sex. What is a wholesome attitude? To the parents this is likely to mean: Wait until you are safely and properly married. To the adolescent it means: Wait patiently until the right partner comes along, get married and raise a family. In short, it means prudent abstinence.

Can anything more specific be suggested?

1. It would help if the community somehow damped the sex stimulation of the adolescent. While the thought of censorship is distasteful in a country that prides itself on freedom of expression, nevertheless, the everlasting bombardment of the young by sexual enticements can be controlled if we want it controlled.

2. We can probably work out arrangements whereby earlier marriages can be encouraged with safety.

3. An adolescent can be helped to cultivate social graces in order to bolster confidence in his attractiveness for the opposite sex. Considering the fact that most people do manage to get married and this without benefit of unusual physical or mental gifts, this should not be impossible. Some sexual delinquency may be due to the fear of social inadequacy. In such cases illicit sex activity may be used as a form of reassurance.

4. But most important of all is adoption by the adolescent of a pattern of values in which sex gratification plays a role, but not the dominant role. Even the cruder forms of sex activity are not devoid of other values. For example, in a study of one group of men it was found that, although

the group was relatively uninhibited about nonmarital sex activity, there were definite rules—a code governing the pursuit of the female and the kind of girl who was to be pursued. Thus it was considered almost unforgivable to approach a “good” girl, or virgin. And among girls no longer “good” a distinction was made between girls who were one-man girls and those generally promiscuous. Prostitutes were classified as least desirable because they represented no conquest, that is, indicated no particular worth or prowess on the part of the male (22).

If we build on the fact that sex drive is always entangled with other drives and with the whole self-structure, it is possible to develop within the person a strong desire for a broad value pattern and a dislike of endangering the whole pattern by yielding to one part—and not the most important part—of it. In other words, the key to restraint is not in painting sex activity in dark colors but in painting the whole value pattern in brighter ones.

In spite of all this, it would be dishonest to say that restraint is easy. Distraction, business, social success, the building of the self—all the aids we can summon only serve to make the self-denial more tolerable and worth while. But if we can reduce the almost morbid preoccupation with sex and the fear that it will never be satisfied we can render the adolescent a great service.

ELABORATION OF OTHER NEEDS

How are aggression needs proliferated?

Although the major drives and appetites were chosen for discussion in this chapter, this should not be taken to mean that other needs do not follow the same type of proliferation, refinement, and transformation.

For example, much could be said about the way the simple aggressive tendencies develop from crude physical attacks in infancy to the most subtle of insults in sophisticated and often malicious adulthood. Indeed, how people manage the expression of this urge to aggression—if it is a real need—is perhaps more important than the transformations of the food needs. William James spoke hopefully of a moral equivalent of war, meaning thereby a devotion to human causes that would elicit the enthusiasms and emotional energy that wars elicit so effectively.

Aside from the aggressive threats of hostile nations and other enemies, psychologists speak of aggressions against ourselves and about the repres-

sions of these so that they break out again in the form of mystifying symptoms. So there is good reason for discussing aggression at length. If we have not done so, it is because this topic will bulk large in the chapter on the maintenance of mental health and also because much of our aggressive behavior or substitutes for it is inspired by the frustrations we encounter in the course of trying to fill our other needs.

Yet we cannot leave this topic without noting that aggressiveness gets mixed up with all the other values, especially our moral ones. Of sex alone we are perhaps more concerned lest it take illicit forms, and this is understandable because by aggression life can be destroyed just as by sex it can be created. Yet aggression and sex are not antithetical. Mars and Venus have always had an affinity for each other.

Perhaps this is nature's way of ensuring that the strong have more chance to leave progeny than the weak. Of course, as a culture becomes more subtle, strength assumes forms other than the physical. Wealth, prestige, and influence are tokens of power and become sexually attractive, just as was the sheer physical prowess of the cave man. Nevertheless, the male with physical strength still has an edge in the race for the approval of the opposite sex, just as beauty is still the most reliable of the feminine assets.

Aggression becomes subtle also by virtue of our intellect. We learn that our aggressions can meet with resistance and even retaliation. Hence it behooves us to control their expression to that form approved by the group whose approval matters to us. Thus we learn that it does not pay to strike the professor whose sarcasm angers us or to tell our employer what we think of him.

If we look over our whole repertoire of needs, it is hard not to come to the conclusion that civilized life is largely a matter of clothing a few rather primitive needs, both physiological and psychic, with layers and layers of custom, learning, and imagination. Indeed, to satisfy any need without this overlay is to brand one's behavior as that of an animal or brute.

How are sensual satisfactions elaborated?

We have tried to show how each of the basic physiological drives becomes involved, surrounded, and interwoven with other values. When fortune smiles upon a people so that these basic impulses can be sated

without too much difficulty, the surrounding values gradually become higher or more important than the original physiological ones. Thus it becomes more important to serve certain foods in a certain fashion and under certain circumstances than to provide for the nutritional needs of the cells. It becomes more important to have a certain type of house in a certain type of neighborhood than to provide protection against the elements. It is only when the satisfaction of these impulses is endangered or when the individual perceives himself as being in danger of having these physiological drives frustrated that he forgets his civilized ways and regresses to a more simple state. Men in real danger of starvation do not demand fancy table settings, and if the danger becomes acute they may even begin to eye each other as food objects.

We have seen also that, because the sex impulse is so universally hedged in and controlled, it is almost inevitable that young people will be the victims of sexual preoccupation and that until the fear of indefinite frustration is removed they cannot concentrate or even see the other and more important values of which sex is a part.

What is the aesthetic need?

Does the same sort of reasoning apply to the universal need of men for the beautiful? Is this a physiological drive? Is it a tissue need? Or do we acquire this need by living with others who in one way or another somehow develop this need?

Some attempts have been made to dig down into human nature to find the source of the love of the beautiful. In general, the results have not been too fruitful. It has been found that infants and children have certain color preferences at different ages (23), and Tolman has listed an aesthetic drive (24).

We also know that in some cultures certain sound patterns and shapes are preferred to others. But the tastes of peoples in different cultures, and even within a culture, vary so widely that it is difficult for the psychologist to say much that is illuminating in this department of life.

But whatever the culture, if it is worthy of the name at all, we find people doing something to objects that, strictly speaking, is unnecessary. Here is a tribe making clay vases. That makes sense because vases are useful for the carrying and storing of substances, and some shapes are more useful than others for this purpose. But why is it necessary to paint

a design on the vase? And why do customers value a vase with a design more than one without it?

It is hard to say anything other than that it gives them pleasure, which, of course, is no explanation at all. What we would like to know is: Why does the design give pleasure? Perhaps the answer is in the design itself. If it shows a picture of people feasting on an ox, then this reminds us of the pleasures of eating and we delight in looking at it. Or it may depict a beautiful sex object or a heroic deed, either of which arouses an already prepared pleasurable feeling.

Unfortunately for this explanation, some of the objects that give us a great deal of pleasure have no such associated meanings. For example, what pleasures have men associated with the following design? (Fig. 5)

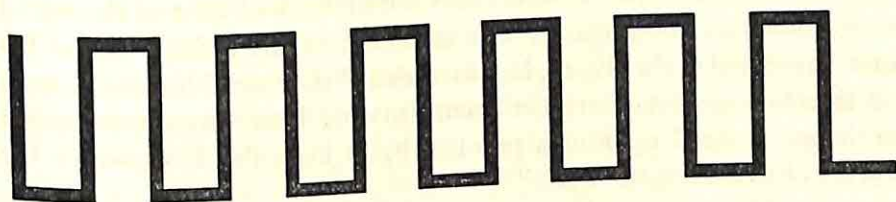


FIGURE 5

And what does the brilliant sunset "mean"? Or an azure sky, or the feel of velvet or of a rough tweed or of leather, or the scarlet and gold of a parade uniform, or the fugues of Bach?

Is aesthetic activity a sublimation?

A theory that we have already encountered holds that all creative activities, such as art, literature, and music, are sublimated forms of the sexual drive. We have seen that Plato interpreted the noblest achievements of man as the Eros expressing itself in ever-higher forms. The difference between the Platonic interpretation and the Freudian one is that, while Plato thought of art and philosophy as a "higher" form of the yearning to create in beauty, he did not explain it as being due to the necessary repression of the "lower" forms of the sexual impulse. On the psychoanalytic theory, all these creative activities come into being only because we cannot gratify the sex drive freely. Thus Freud (25) says:

This very incapacity in the sexual instinct to yield full satisfaction as soon as it submits to the first demands of the culture becomes the source . . . of

the grandest cultural achievements, which are brought to birth by ever greater sublimation of the components of the sexual instinct. For what motive would induce man to put his sexual energy to other uses if by an disposal of it he could obtain fully satisfying pleasure? He would never let go of this pleasure and make no further progress.

Let us stop for a moment at the question in this quotation from Freud. In the first place, if man has *only* sexual energy, then art must be one form of it. Even if there were two forms of energy, sexual and aggressive, the problem would be no different, for the issue is whether the need to create beauty or to experience it is a *unique* kind of human experience or a disguised form of some other type of experience.

In the second place, how could one prove the Freudian theory wrong? Suppose the creation of literature is not the sublimated form of the sexual energy, how can one prove it? The testimony of the artist is useless because, according to the theory, he has already "repressed" his sexual urges and therefore cannot remember them anyway. Every argument against the theory is seized upon as a proof of it. In logic this is known as the "fallacy of poisoning the wells."

It seems more in accordance with the facts to say that any one of our senses when stimulated by patterns of energy that are not too violent, that have some balance, rhythm, unity in diversity, capture our attention and give rise to peculiar and specific kinds of pleasure. We enjoy the surface qualities—the colors, sounds, textures, movements, odors, and flavors—not *because* they feed us or give us other pleasures, such as those of food, shelter, prestige or sex, but just because they stimulate us as they do.

And once we have experienced these pleasures we tend to want to have them repeated. Hence we feel a need for them. Is this a tissue need? Not in the sense that hunger is a signal of a tissue need. Yet it almost seems that each sense organ craves a kind of stimulation that enables it to function smoothly, pleasantly, and efficiently. Or we might speculate—for it is, after all, only speculation—that we are from infancy so anxiety ridden by the need for physical and psychological security that any moment in which we can forget this, ourselves, and our predicaments by losing ourselves in the surface quality of an object is experienced as a positive pleasure. It is like forgetting one's headache through an intense absorption in a play. Yet it would be hard to understand our craving for poetry, literature, drama, painting, sculpture, architecture, and the dance if all

these were no more than momentary distractions from daily toil and trouble, from the useful and the important (see Chap. 11 for further discussion of the aesthetic phase of experience).

How is this need developed?

The origins of aesthetic experience may be shrouded in mystery but its development is not. The love of the bright color, the melodious, rhythmical sounds, the sinuous line, the ornament—this is universal. What is not universal is a preference for a particular pattern of sounds, textures, flavors, odors, and colors. These vary from culture to culture, almost from individual to individual.

Aesthetic experiences could not long remain isolated from the other kinds of experience. The beauty of the table setting becomes part of the food-taking pattern and so may the strains of the dinner music. Romance, as we have seen, is pretty largely the attribution of beauty to the beloved object.

Love, as Plato described it, was the desire to create in *beauty*. Sexual attractiveness is so mixed up with pleasing forms, colors, and tonal patterns that it is hard to tell where one ends and the other begins. Likewise, to the hungry many favorite foods look "beautiful," and certainly their flavors when noted on their own account must certainly seem "beautiful."

Aesthetic pleasures, therefore, when they are components of *any* experience enhance the pleasure to be derived from the *whole* experience as well as furnishing a special kind of pleasure in and of themselves.

What does the aesthetic experience express?

The surface quality of things, the appearance of a cloud or the sea, the sound of a melody, the texture of materials—these do even more than please by their appearance. A scarlet and gold uniform worn by a strutting drum major is not merely pleasant to behold, it looks gay, dashing, buoyant. It expresses a certain mood. Seeing the drum major establishes the mood in us. We speak of an "angry sea," a "martial air," a "winding" road, a "serene" landscape. Indeed forms, shapes, patterns of colors and sounds and movements seem to tell us something, but not in ordinary language (26).

When the appearance of anything *suggests* an emotion, we say that this

appearance is expressive. There seems to be fundamental desire in human beings, at least, to express what they feel or feel strongly. A sharp pain almost irresistibly brings forth a cry or a howl even from an animal, and upon hearing it we shudder a bit as if the cry itself were painful. Whenever we are excited we are hard put to it to keep our voices down and our gestures calm. Joy demands communication, and for many so does sorrow.

Furthermore, our deeper emotions spread themselves over our faces and over our whole bodies, so that the observer seems to read our moods from our appearance alone. Much of dramatic art depends, of course, on this kind of "form-language" that is expressive *without* words.⁵

Not only do we feel impelled to express what we feel, but we feel some satisfaction in recognizing the expression of our emotions when we stumble upon them. The song that seems to mirror our melancholy mood gives a sad sort of satisfaction. Perhaps that is why all important occasions seem to cry out for special music, special oratory, special scenery to express for the assembled company the mood the occasion is supposed to arouse.

Because the expressive urge is so normal, and normally so strong, it is not surprising that disturbances of mental health should be reflected in expressive activities such as finger painting (28), play therapy (29), and psychodrama (30). These activities are used not only to help diagnose emotional disturbances but also in some cases to correct them (cf. Chap. 16).

It would be surprising if the sensual and aesthetically expressive needs developed very differently from the other needs. There can be obstacles to the fulfillment of the need. Beauty can be pretty scarce in some lives. A woman who for most of her life had to live in city apartments was so starved for flowers and growing things that upon moving into a suburban apartment that permitted her a few feet of soil for cultivation literally made a cult out of it—to the extent of watering her flowers in the rain. The unsatisfied need for pretty clothes and ornaments is not the least potent motive for sexual and other types of delinquency in women and girls.

⁵ It is doubtful, however, as to how much of emotional expression is innate and how much learned. Different cultures, for example, American and Chinese, do not express the same emotions with the same facial expressions. Nor is there clear-cut evidence on our ability to read emotions from facial expressions, although Davis (27) found that there was a tendency for each emotion to bring into play a unique set of facial muscles.

There is almost no limit to the elaboration and proliferation of this need. To the connoisseur the requirements for satisfaction become very strict indeed. Aesthetic delight can range from the simple joy of a child in a bright toy to whatever it is the most experienced of art connoisseurs feels in the presence of a masterpiece.

Similarly on the expressive side, the childish spontaneity of expression in the dance, song, poetry, drawing gives way to more stereotyped forms in later childhood and by adolescence the spontaneity and natural outburst of aesthetic activity is pretty well gone. The demands of adult life are such that only those who are willing to cultivate artistic ability dare to use it for expressing themselves to the public or even to their own groups.

This is an important problem for both education and mental health. The closed-in personality that cannot seem to express itself is a familiar visitor in the psychological clinic (cf. Chap. 12).

In this chapter the emphasis has been on the extent to which original physiological and psychological impulses are developed and overlaid by other types of experience that, in time, become important as incentives in their own right. Not much has been said about *how* this process takes place. Clearly, the name for this general process is *learning*, a topic to which Chapters 10 and 11 are devoted.

SUMMARY

We have seen that each need proliferates from a simple innate form into an overwhelming complexity of human life. Even the physiological needs for food, liquid, comfort, rest, shelter, and sex relief do not remain long in their pure natural state. They become associated with each other and with all our other experiences so that new needs rise out of them. In time it is not the need for nutrition that we experience, but rather the need for eating a certain kind of food in a certain kind of setting with certain utensils and at a certain time.

Similarly, our need for shelter proliferates and becomes transformed into the need for certain types of dwellings and furnishings. Sex, of course, is the most embellished, disguised, proliferated, and pervasive of all the needs because its satisfaction is so precarious to the young. We find, therefore, that it unites with the aesthetic needs to give us the romantic experience, with economic needs and other values to give us family affec-

tion and devotion. We tried to see whether it was meaningful to speak of "sublimating" the sex impulse and found that what we usually meant by this phrase was distracting the adolescent into other channels of activity. A better meaning for sublimation is the recognition that the satisfaction of sex can either enhance or endanger other value experiences, and that to use the sex impulse to enhance rather than to endanger other values is to sublimate it.

We closed the chapter with a discussion of the sensual needs or the desire for the delights that arise when our senses are stimulated by certain patterns of color, sound, touch, and so on. These delights seem to be part of our native equipment and manifest themselves at a very early age. They, too, by imagination, learning, and experience in general become complex as they unite with and pervade other types of experience. At higher levels these aesthetic patterns not only delight the observer but say something to him, that is, they communicate a mood or an emotion. Such expression seems also to fill a universal need of mankind.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: To illustrate the elaboration of a physiological need

Procedure: In any issue of a current magazine select two full-page color advertisements relating to (a) foods, (b) houses or furnishings, (c) clothing. Study these to decide:

1. To what extent the aesthetic element is used to enhance the appeal (both in the beauty of the ad and in the beauty of the objects or descriptions in it).
2. To what extent the advertiser depends on the reader's desire for approval from a certain class of people to buy the product.
3. To what extent the product promises the buyer greater prestige, self-esteem.
4. Whether in each pair of advertisements you detect any great difference in appeal.
5. The extent to which the "acquired" motives have become dominant over the physiological ones in these advertisements.

PROJECT II

Topic: How food-taking becomes connected with other values

Assignment: Read James G. Frazer, *The Golden Bough* (Abr. ed.; New York: Macmillan Co., 1940), p. 238, and Chaps. L and LI. Also Old Testament, Lev. 11: 1-49 and Deut. 14: 3-21.

Questions for Class Discussion

1. What, according to Frazer, is the significance of eating the first fruits of the harvest?
2. What is the significance, according to Frazer, of eating the image of the god?
3. What is meant by homeopathic magic of a flesh diet?
4. What seems to be the significance of the Bible's forbidding the eating of certain foods?

PROJECT III

Topic: To study the relationship of the sex drive to complex social relationships

Assignment: Read Robert Briffault, "Group Marriage and Sexual Communism," Art. 85 in E. L. Hartley, H. G. Birch, and R. E. Hartley, *Outside Readings in Psychology* (New York: Thomas Y. Crowell Co., 1950), pp. 697-702.

Questions for Class Discussion

1. On what grounds does Briffault argue that sexual communism is somehow related to clan brotherhood?
2. To what conflict does the loyalty to clan brotherhood lead among the Arab tribes described in the selection?
3. Can you indicate how the sexual drive has in some of the cases described in this selection assumed religious and economic significance?
4. In general, is the sexual arrangement in this selection "freer" from communal regulation and law than in our own culture?

RECOMMENDED READINGS

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Part III

PERCEPTION AND LEARNING

Behavior develops out of simple urges and needs. What guides this development? In general the answer has been suggested in the previous two chapters. We shall deal more specifically, however, with two psychological processes that shape this development: perception and learning.

We act on the basis of what we judge circumstances to be, and we make this judgment on the basis of how we *perceive* goals, obstacles, and relevant resources. And out of what do we construct our aims and devise our means? Presumably from the structures of things and people, but primarily from our experience, that is from what we have *learned*.

Perception of the Stimulus: Sensory Components

PSYCHOLOGICAL PROCESSES IN VISUAL SENSATION

How many senses have we?
What is the stimulus for vision?
How do rods and cones operate in vision?
Are there qualities in color?
How are color qualities related?
Why is color important for the artist?
What happens when colors are mixed?
What are some other psychological aspects of color?
What is color blindness?
How do we perceive distance and depth?

OUR OTHER SENSES

What are the physical factors in human hearing?
How do sound waves produce qualities?
How is sound related to music?
What is the nature of speech?
What do we mean by pain?
What is pressure?
How much heat can we stand?
What senses depend on chemical stimuli?
How do we experience taste?
Are there specific nerve energies?
What is meant by the "sixth sense"?

ALTHOUGH there was more truth than poetry in the song "Things are seldom what they seem" in *H.M.S. Pinafore*, the messages that come to us from our sense organs, our sensations, actually are the base on which we erect all knowledge. This was known

to the ancient Greeks, and for centuries since then philosophers and psychologists have argued as to whether it could be proved that there is a "real," or external, world.

In psychology we do not have to *prove* the existence of a world outside of ourselves and our ideas; our task is to show how we come to perceive a world through our senses.

PSYCHOLOGICAL PROCESSES IN VISUAL SENSATION

It is not possible to divorce the physiological aspects of sensation from the psychological aspects, yet we shall seek to devote most of our discussion to the latter, referring to the physiological aspects only when necessary and not attempting to describe the details of the structure of the various sense receptors (for example, the eye and the ear).

How many senses have we?

Much has been learned about the senses, but much remains to be learned. For example, we do not even know how many different senses we have, although it is evident that there are more than the usual, or classic, five of sight, hearing, touch, taste, and smell. Though from the days of Aristotle it has been taken for granted that there are five senses, some investigators now claim that there are at least two dozen. For instance, such specific sensory experiences as pressure, pain, warmth, cold, and balance are known to have their separate receptors in the body.

Why do we see a bright light instead of a dim one? Why are some lights green, and others red? Why are some sounds loud, and others not? Why do objects seen by us have shapes, sizes, and appear near or far from us? Why is one experience painful, when another is felt only as a pressure?

Such questions raise the inquiry of what are the attributes or characteristics of a sensory experience, and the attributes have been usually described as:

1. *intensity* A loud noise, a dull pain, or a bright light.
2. *quality* A taste is bitter, a light is yellow, a tone is low in pitch.
3. *space* A house has size, shape, and is located at a certain distance.
4. *time* How long does a pain last, is it steady or intermittent?

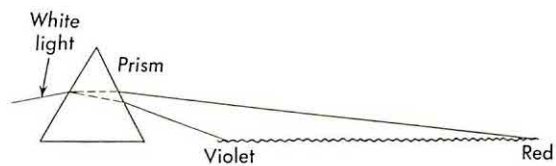


FIGURE 7
THE VISIBLE SPECTRUM

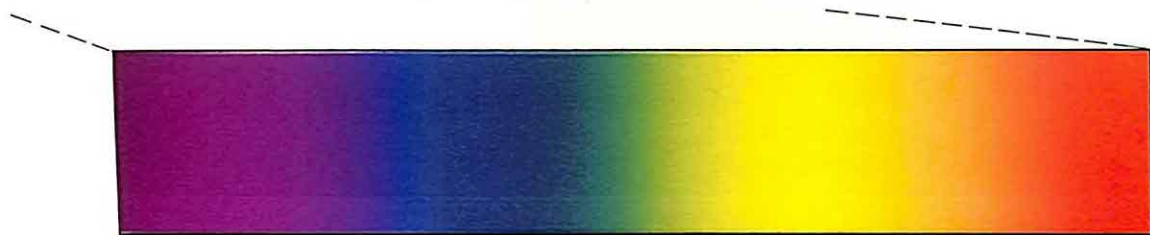
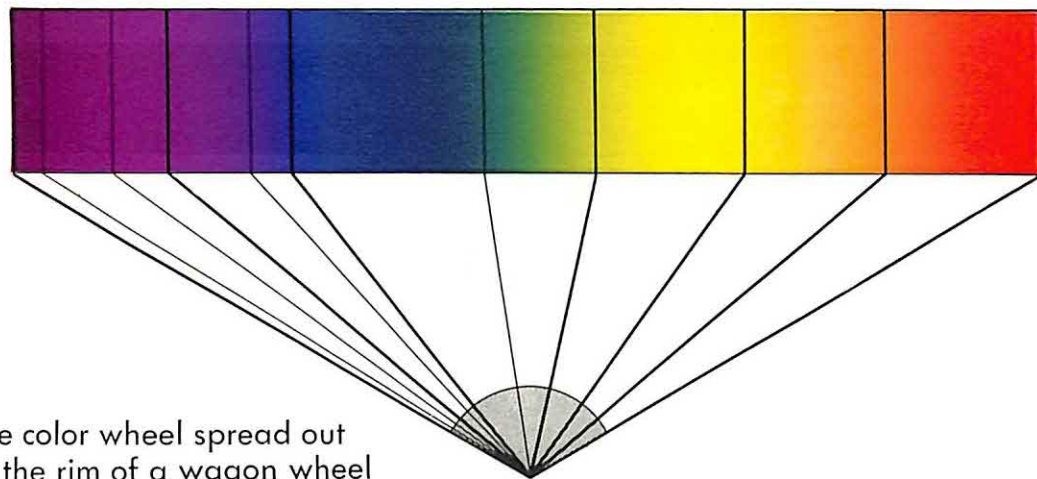
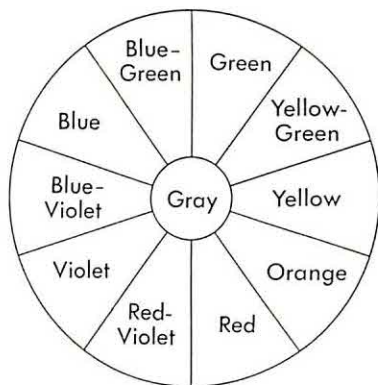


FIGURE 8
THE COLOR WHEEL



The color wheel spread out
like the rim of a wagon wheel

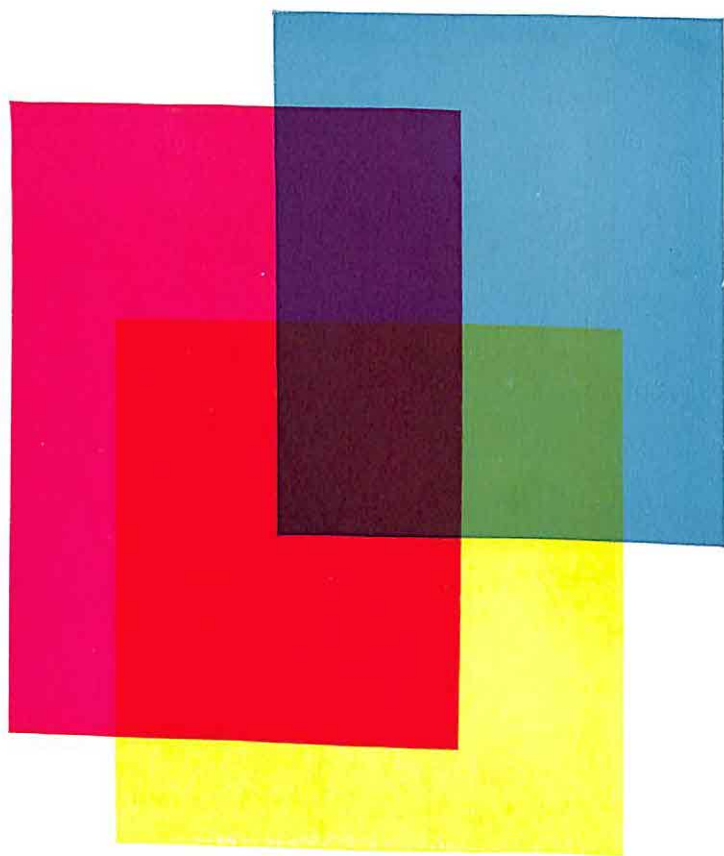


FIGURE 9

COMBINING PRIMARY COLORS OF PIGMENT BY SUBTRACTION. One pigment primary subtracts one light primary. Adding a second pigment primary takes another primary from the light. Adding the third pigment primary produces black because the third primary of light is absorbed. (Figures 9, 10, and 11 are from *Color Guide for Marketing Media*, copyright 1954 by Louis Cheskin and published by The Macmillan Co.)

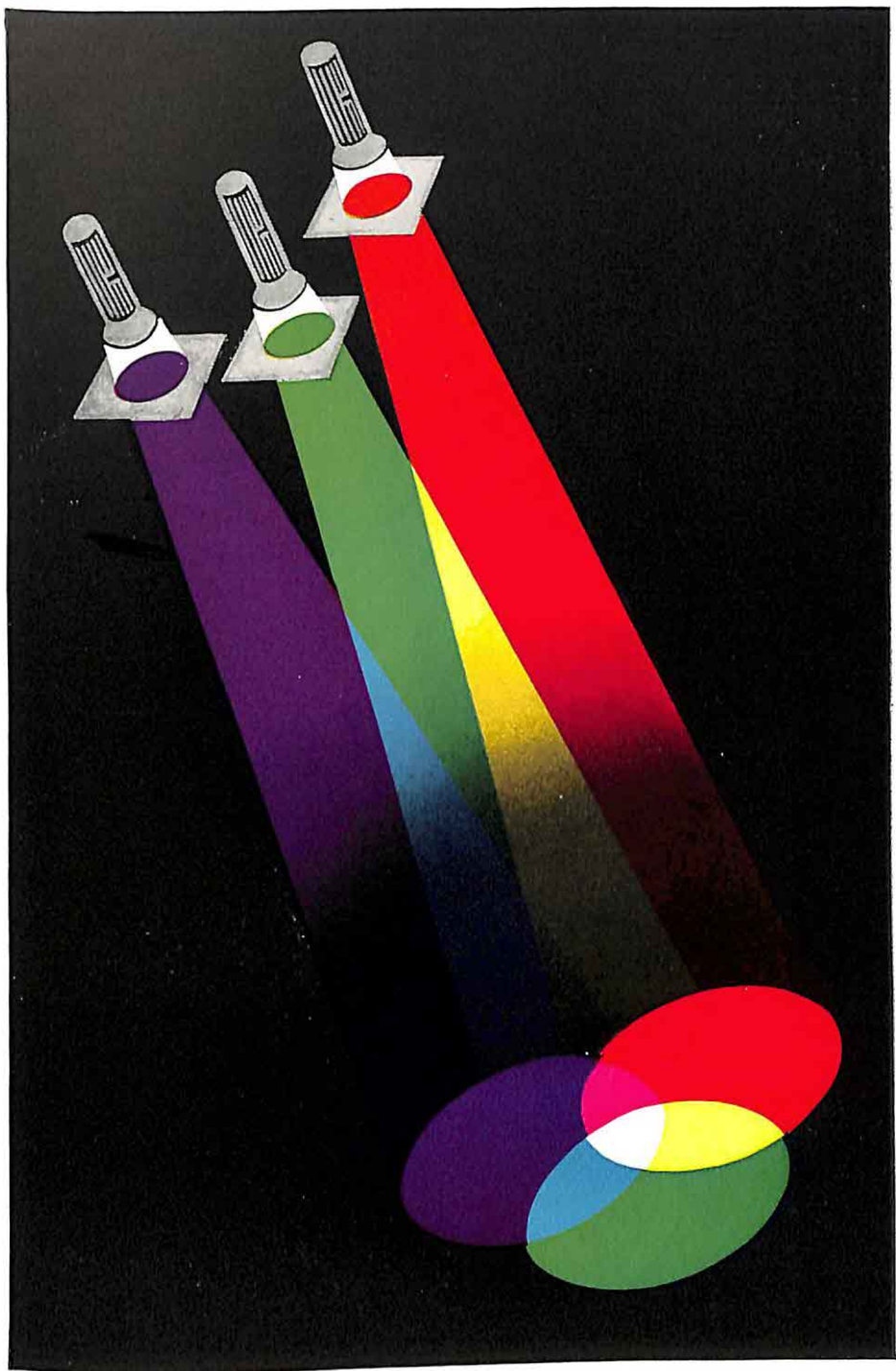


FIGURE 10
COMBINING PRIMARY COLORS OF LIGHT BY ADDITION.

FIGURE 11

AFTERIMAGE. Look at the flag for about a minute. Lower your gaze to the black dot, and you will see the American flag.

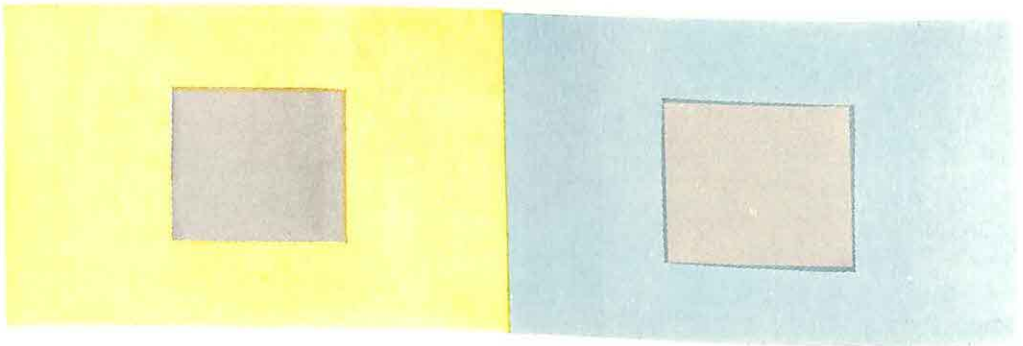
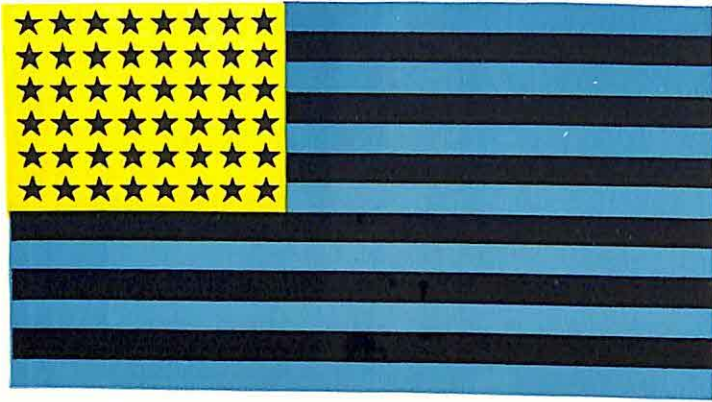


FIGURE 12

COLOR CONTRAST. The gray square on the yellow background seems to be bluish; the square on the blue background appears to have a yellowish cast.

Yet, as Boring has pointed out (1), the Gestalt school of psychology did much to doom the usefulness of these attributes. The physical stimuli themselves do not contain the answer to our total sensory experience. Any complete explanation must include the perceiving organism, an analysis of the mental elements of sensation.

Anatomy, says Morgan (2), likewise does not explain what a sensory receptor will do by examining its appearance. An animal's perception of color, for instance, cannot be known by examining the receptors in the animal's eye; the anatomy of skin receptors cannot explain perceptual processes. Although the receptors send us messages which we use in our perceptions, the signals sent are not simple ones: *perception depends on complex patterns in these sensory signals.*

What is the stimulus for vision?

Physics informs us that our brain combines thousands of light messages, vibrations of certain intensities and frequencies, which have impinged on the eye, the sense receptor of vision. Thus, the stimulus for vision is light, an energy that can be described in various *wave lengths*. These waves range from the red end of the spectrum of 760 millionths of a millimeter to the violet end of 390 millionths of a millimeter. The energy is translated by the eye in terms of the wave lengths into nerve impulses to the brain. The total number of these nerve-lines to the brain is slightly more than one million.

Light waves vary also in *intensity*, or the amount of luminous energy involved. Generally, when the energy of the stimulus is increased, the intensity of the sensation also is increased.

What we call white light, the light from the sun, is actually a mixture of all the different wave lengths, and when white light is passed through a prism it is broken up into lights of various wave lengths, that is, the colors of the rainbow. When a flag is seen as "red," it means that the cloth and the dyes applied to it have absorbed all the wave lengths that combine to make up white light *except* the wave length corresponding to red light. This is reflected to the eye. From physics, then, we know that light, actually reflected light, is the stimulus for vision, and from physiology we learn that the eye and the brain manage to translate this light energy into a sensation of color. However, the end result, that is, what we see, is not the result of these alone; we still have to consider them in

their context or surroundings. For instance, how shall we explain that in one context an object will appear brighter than it will in another context, or vice versa?

How do rods and cones operate in vision?

In the retina of the human eye there are millions of cells or nerve endings called rods and cones. The retina itself is an outgrowth of the brain. In the center of the retina, at a place called the fovea, only cones are located; there are no rods in this area. There are many more millions of rods than cones, and examination of the periphery or boundary of the retina discloses that the cones thin out rapidly as we get farther away from the fovea, and are replaced by the rods. Rods function more efficiently at low light intensities, as at night, while cones function at higher light intensities, as during the day. According to an old and well-known theory of vision known as the *duplicity* theory, rods do not initiate color sensations but cones do. When light is sufficiently intense, the cones are stimulated and color is seen. Thus the theory maintains that rods and cones have separate functions in the sensing of visual phenomena.

This is further explained by the theory that, as the eye becomes accustomed or adapted to an increasing darkness, the rods become more effective. Colors at the short end of the spectrum in such a situation lose their brilliance more gradually than do those at the red, or long, end. Hence the blues and greens of a flower garden stand out more distinctly in the evening than the reds and the yellows. This is known as the *Purkinje phenomenon*.

Are there qualities in color?

What can we say about colors? We can speak about (a) the kind of color it is, that is, its hue, (b) whether it is bright or dull, and (c) if it is pure or mixed with other colors, that is, its saturation. Each of these qualities is related to a characteristic of the wave length of the light that strikes the eye.

Hue. When we perceive a red flower, we really are saying that it "looks red." Physics has explained how the red object is reflecting the wave length from the long wave end of the visible spectrum. In the same way, a violet object is a reflecting light from the short wave end of the spectrum,

and between them are blue, green, yellow, and orange, with many intermediate hues such as blue-green, yellow-green, and the like (Fig. 7).

Brightness. When we say that one color is brighter than another we are suggesting that it appears more intense than the other. The intensity of the light waves involved is one reason. For example, if we place an object of a certain color in a bright light, the color appears to be brighter than it was beforehand. Also, the length of the light waves can be involved. For instance, the retina of the eye is most sensitive to waves of medium length, such as yellow. Finally, the context or luminance of the surrounding field can influence how an object "looks."

One interesting phenomenon of brightness is that a bright light soon loses its initial brightness. The reverse is equally true; the darkness of the movie theater does not continue permanently, and after about half an hour we can see people and objects around us with considerable clearness. This is called light and dark adaptation, and is part of the general sensory phenomenon of *sensory adaptation*.

Saturation. A third quality of color discrimination is saturation. This refers to the purity of a color. We can see immediately that a strong red is different from a weak pink, and that red and blue are "purer" than orange and yellow. We say that the more a color lacks gray the more saturated it is, and the more it approaches gray the less it is saturated. Consequently, a pure color is highly saturated and a dull color is less saturated.

How are color qualities related?

These three qualities of color are related to each other. As there are three dimensions to color, a three-dimensional form called a *color solid* (Fig. 6) will illustrate this relationship. We might think of two empty ice-cream cones with their mouths glued together. Around the circumference of this wide central rim are located all the hues of the spectrum, as well as purple, a compound of red and violet. White and black will be at the tips of the solid, and a line running from white to black will indicate the degrees of brightness, with white the brightest visual sensation. All the grays will be located along this line, and the black at the bottom will be the least bright sensation. The radius of the glued mouths of the cones will represent saturation, the line running from P to G, with

increased saturation resulting the farther we move outward from the middle gray.

The color solid illustrates why the brightest and the darkest colors are the least saturated, with white at the top and black at the bottom tip having zero saturation. Hues become less saturated as they near the

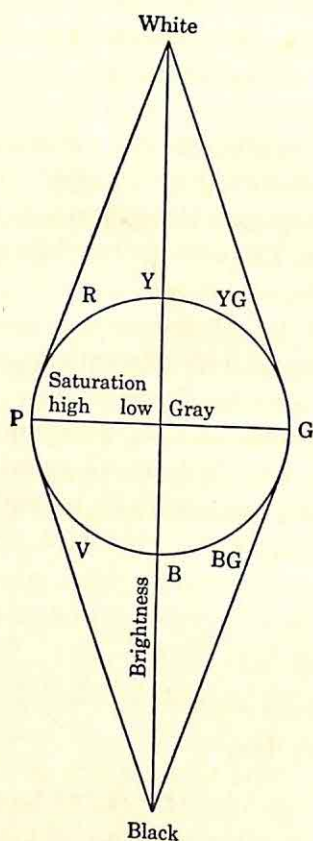


FIGURE 6

A COLOR SOLID

brightness line, and are the most saturated the farther out they are on the figure.

Why is color important for the artist?

In what he calls "secondary characteristics" of color, Pepper (3) includes *color quality*, the effect of two or more colors reflected from the

same surface, for example, the colors of different materials; *apparent distance*, whereby cool colors seem to retreat and warm colors advance; and *apparent weight*, whereby darker colors seem to be heavier.

Artists have long known that duller colors appear to be farther away from us, and vivid and bright colors seem to be nearer. Moreover, the artist will tell you that a color hue is relative to other colors around it. A white house, for example, if we can forget that it is white, may take on different colors because of its relationship to other colors in its surroundings.

In describing our color sensations we say that a pastel shade is "soft," a blue is "hard," and a bright red is "vigorous." Colors likewise produce in us feelings of warmth or cold: reds and yellows make us feel warm, blues and greens give us feelings of coolness, and rooms are often painted such colors to give the desired effect.

According to Cheskin (4), people are often unaware of the impact of color and yet unconsciously can be affected in their mood thereby. Colors can be responsible for pleasant or unpleasant moods, sometimes the result of past experiences that are now "forgotten."

Summarizing, we can say that light waves differ in length, in intensity, and in purity. Our corresponding sensations differ in quality, that is, in hue, brightness, and saturation.

What happens when colors are mixed?

We get new visual results when colors are mixed. When an artist wants to obtain a desired effect, he mixes the paints on his palette. For an artist there are three primary colors: bluish red or magenta red, turquoise blue, and yellow. What about green? Green is a mixture, mix yellow and turquoise blue and the result is green. In the making of the green the artist has *subtracted*, not added. The yellow absorbs all but the yellow and green wave lengths, and the turquoise blue absorbs all except the turquoise blue and green. What is left is green, the one color reflected in common by the two original colors (see Fig. 9).

On the other hand, the primary colors in *light* are red, violet-blue, and green. When colored lights are mixed, they are added to each other. Mix red and green lights and the result will be grayish yellow; mix yellow and blue lights and the result will be either a gray or a white, not green (see Fig. 10). You can get all other colors from these three primaries by additive mixtures.

The laws of color mixture. The color wheel (Fig. 8) will demonstrate the laws of color mixing. Isaac Newton formulated these laws, and they are the result of adding the wave lengths of one color stimulus to those of another, producing a wave length for the mixture. The laws may be stated as follows:

1. The *law of complementaries*. Pigment colors are complementary if when mixed they cancel each other out. Magenta red and green and violet-blue and yellow are complementaries. When complementary colors are mixed in the correct proportion the result is black. Mixing black and white gives a decided gray.

2. The *law of noncomplementaries*. When colors which are noncomplementary are mixed the result is a blend. Mixing blue and green will result in a bluish-green of lower saturation than the original colors.

To find out which color is complementary to another, draw a line through the center of the color wheel. A color's complementary is opposite it on the wheel. Thus the complement of violet-blue is yellow.

What are some other psychological aspects of color?

Afterimages. One of the interesting aspects of color, psychologically considered, is seen in afterimages. As the name indicates, an afterimage represents the persistence of the response to the stimulus after the latter is removed. A *positive* afterimage appears rapidly after the cessation of the stimulus, has the same hue as the stimulus, and actually is a persistence of the stimulus itself. A *negative* afterimage is somewhat delayed and is complementary in color to the positive afterimage. While it lasts longer than the positive, it requires more initial stimulation. In Fig. 11 the afterimage is a dramatic one; try to reproduce it.

Afterimages also seem to change their form. If we look at a small colored square long enough to develop the negative afterimage, and then look at the wall, the square appears to be quite huge; bring it back to its original focus and it once more is a small square (5).

Color contrast is another visual phenomenon not easily explained physiologically but observed readily in visual experience. Place a gray square on a colored background. The gray at once is tinged with the complementary color of the background: the quality of a color is affected by the background. A color seems lighter when placed next to a darker color, and vice versa (Fig. 12).

Color preference. The fact that colors are complementary means that they are physically and psychologically balanced, and this may account for the preference of people for complementary colors. Cheskin (6) tells us that some colors have high preference ratings, while others have low ones: men prefer deep shades, and women like tints; primary hues elicit strong emotional reactions, neutral hues do not. Further, there apparently are cultural factors operating in color preference; tests at Color Research Institute of America indicated that persons of higher education and income prefer delicate colors, whereas brilliant colors were preferred by the poorly educated and low economic classes.

The preference for one color over another may be the result of a need to inflate one's ego or feelings of self-esteem. Hence, if red is the current fashion, a woman will often buy a red dress or coat because she believes it will give her prestige. According to Cheskin (7), about 40 per cent of all women buy clothes of certain colors because they want to enhance their complexions, while 40 per cent more choose colors which are then in fashion.

Colors have a symbolic meaning for us. Purple has always been "royal," the color of kings and emperors. Blue ribbons are given to winners. Red is a symbol of danger, but red also can mean a strong emotional state, and thus we say a team is "red-hot." We speak of black and white as if they in themselves had something to do with a perceived situation. A person may have a "black heart" or use "black magic," and a "white lie" is a social necessity. The list of color symbolisms is almost endless. An interesting device might be for the reader to take the colors red, blue, yellow, and green and write out as many symbolic connections or relationships as he can with each; undoubtedly, the result will be surprising.

What is color blindness?

Color blindness is of interest to the psychologist. It is believed that most of the lower animals are color-blind, but the human being is only rarely found to be totally color-blind. However, many human beings are unable to distinguish red from green, and in some instances yellow from blue. You will notice from this that color blindness is evidenced in complementary pairs, although the red-green is much the more common.

We know from biology that color blindness is an inherited matter, that it is *sex-linked*, and is found many more times among men than women.

For instance, a red-green color-blind person will have inherited the deficiency from his maternal grandfather.¹

How do we perceive distance and depth?

Two eyes are better than one, yet a one-eyed person can see distant objects with a fairly high degree of success. This is accomplished by means of available *monocular* cues. The most prominent of such cues are:

Accommodation. The lens of the eye bulges out when we look at objects which are close to us and flattens when we view more distant ones. This physical change is caused by a stimulation of the muscles attached to the lens, and the eye "accommodates" in presenting the best focus. This change in the muscles is felt and becomes through learning a cue of distance.

Distinctness. Smoke, fog, dust, and smog in the air around us can distort our perception of distances unless we have become accustomed to their presence in the atmosphere and judge distant objects accordingly. The city dweller who is used to such conditions is generally confused as to the nearness of distant mountains when he is spending his vacation in a clear atmosphere.

Interposition. An object which conceals part of another object is seen as closer to you. This is obvious to everybody.

Linear perspective. Look at a railroad track and notice how the rails converge as they near the horizon. In the same manner, objects decrease in size as they recede from us. The church steeple a half mile away seems quite small.

Relative motion. While you are driving a car the ground close by appears to be passing much more rapidly than objects a little distance away. On the other hand, objects a long way off seem to move with you in the same direction that you are moving.

Shadow. When light strikes an uneven surface part of the surface seems darker than the rest, and this allows us to perceive the third dimension of depth. Artists use light and shadow to convey the idea of depth in their paintings.

¹ The abnormality is usually transmitted from a color-blind man through his daughters, who are normal, to half his grandsons; and from a color-blind woman to all of her sons and none of her daughters." Thus, the color-blind gene is associated with the X chromosome.—L. L. Woodruff, *Foundations of Biology* (4th ed.; New York: Macmillan Co., 1931), p. 298.

When both eyes are stimulated we obtain additional cues to distance and depth. These are called *binocular* cues.

Convergence. The eyes will converge in order to fixate a close object, such as the print in a book. In this case the muscles that turn the eyes inward are tensed. When a distant object up to about fifty feet away is seen, the muscles that turn the eyes outward are tensed. From these muscle tensions the brain receives cues which inform it of the distance of the objects.

Stereoscopic vision. Perhaps you have seen an old stereoscope, a device which gave the appearance of depth to postcard views of scenery? They were popular around the beginning of the century. If not, you have surely seen some of the newer motion pictures which employ some modification of this device to create the illusion of a third dimension. A perception of depth results from what is known as retinal disparity, that is, the difference between the two retinal images of the eyes, a difference that prevails because the eyes themselves are about two and a half inches apart. In looking at an object the right eye sees a little more around the right side of the object, whereas the left eye sees more of the left side of the object. In stereoscopic vision the eyes see two different pictures, but the two disparate images are thrown on the same part of the retina which would normally be stimulated; a third dimensional image is the result, a combination of the two images.

OUR OTHER SENSES

We know that hearing is important in our behavior. A child born deaf usually has a lower intelligence than a child with normal hearing. A deaf person frequently develops the belief that others are saying derogatory things about him, and the deaf may even lose the ability to speak correctly. Fortunately, there are hearing aids that are of real assistance in overcoming the handicap caused by most cases of deafness.

What are the physical factors in human hearing?

Sound waves move back and forth in some medium, generally air, and at a constant speed, depending on the medium. For instance, sound travels faster in water than in air, still faster in steel and glass solids, and will not travel at all in a vacuum. The ear is the sense receptor for sound, and it distinguishes sounds of different wave lengths.

It is not a simple matter to visualize the motion of sound waves, because of the motion of the medium and the motion of the wave itself. The analogy is sometimes used of waves caused by wind in blowing across a grain field; the waves move across the field, but the stalks of grain merely move forward and backward. While not so simple as this, the movement of sound waves through air is somewhat comparable.

Sound, then, can be explained physically as being produced by vibrations. The term "cycle" is employed to signify one complete vibration.

We use various terms to explain the motion of sound waves. *Frequency* means the wave length, or the number of cycles completed per second by the wave in passing a given point. While some animals can hear sounds higher or lower than man can hear, human hearing ranges between 20 and 20,000 cycles per second (Fig. 13). Ultrasonics, or "silent sound," are waves that vibrate too fast to be heard by man, yet we know that they exist and are of great intensity.

Sound waves vary in *amplitude*, or size. The loudness of a sound wave corresponds to the brightness of a light wave, and they depend on the amplitude of their respective wave motions. Loudness of sound as we psychologically experience it usually increases or decreases with the intensity of the stimulus, though it can vary with the frequency. Sounds of high frequency have more energy than do those of the same amplitude but of lower frequency.

What do we hear? Basically we hear tones and noises. Sounds which are sustained or continuous in frequency and amplitude are called *tones*, while those which are disorganized or lack this kind of frequency are called *noises*. It is not easy to distinguish between these, however, since noises may be continuous and many producers of tones also make some noise.

How do sound waves produce qualities?

The sensations aroused by sound stimuli have their own qualities; two of these qualities are pitch and loudness. Pitch is the highness or lowness of tones, and loudness is the intensity of the sound. High pitch is heard when there is a high frequency, and low pitch is heard when the frequency is low. The difference in the singing between a soprano and a basso illustrates pitch, while loudness depends on both amplitude and frequency.

HUMAN HEARING

SCHEMATIC REPRESENTATION OF INTENSITY AND FREQUENCY CHARACTERISTICS
OF THE HUMAN EAR AND LOUDNESS OF SOUNDS

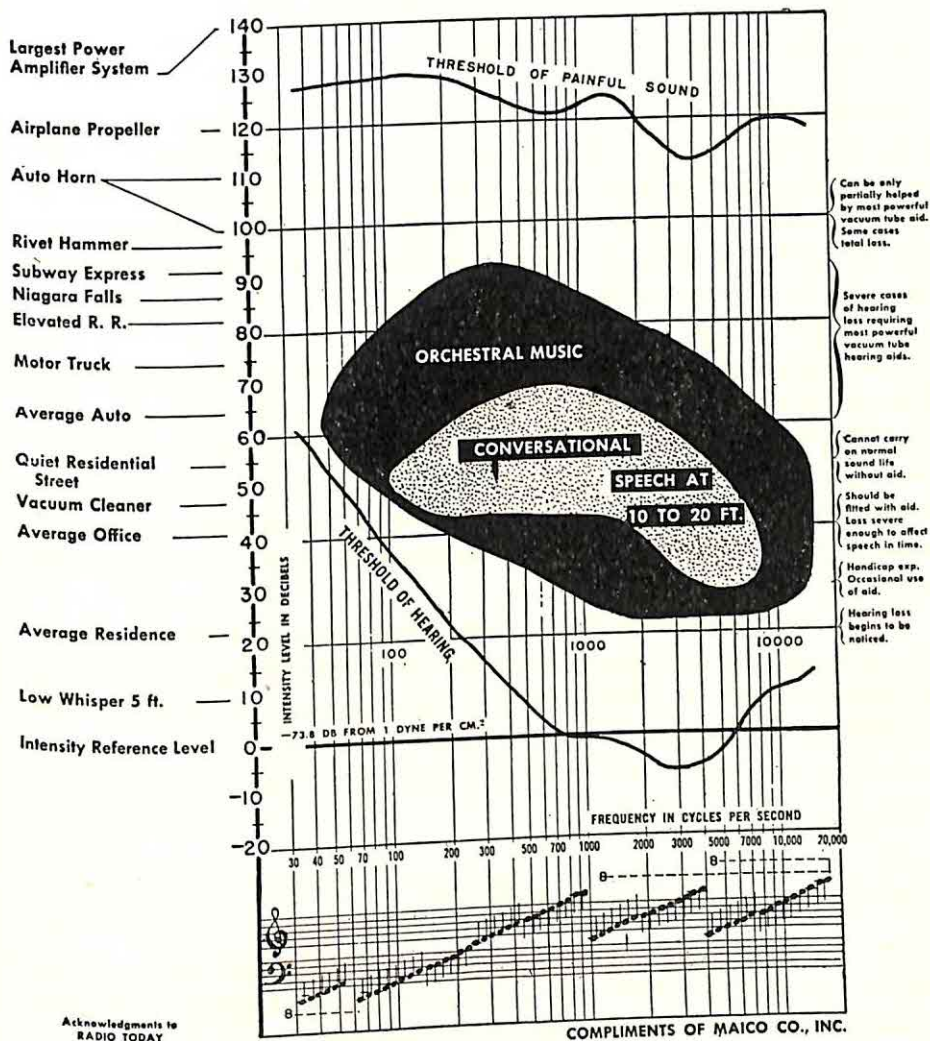


FIGURE 13

(Reproduced through the courtesy of the Maico Co., Inc.)

Sound results when an object begins to vibrate. If we hit an object with a hammer, we produce a single sound; a drop of water from a leaky faucet also causes a sound, but when there is a heavy rainstorm in progress the sound becomes continuous and we hear the beating of the rain on the roof. Usually, we call these sounds noises.

How is sound related to music?

Musical instruments produce regular, or periodic, vibrations, at least string instruments and other producers of regular waves do. When a musical instrument is played, we can tell what instrument it is by its quality of sound, or timbre. All musical instruments produce tones of complex vibrations: middle C, for instance, sounds different on different instruments (Fig. 14). Timbre, then, depends on wave complexity. Further, every vibrating body except a simple tuning fork, vibrates both as a whole and in parts. The whole, or simple, vibration is known as the *fundamental* tone and the part vibrations are called *partials*. The partials have their own pitch, and are called *overtones*, having frequencies which are two, three, four, or more times that of the fundamental tone. Musical instruments give off both a fundamental tone and overtones, and it is the latter along with their loudness that give each instrument its unique timbre.

We like music because it has rhythm, melody, and harmony, which are more complex arrangements of sounds. Very briefly, rhythm is a pattern of sounds, melody is related to pitch, and harmony results when notes are sounded together.

What is the nature of speech?

Human speech is composed of both tones and noises. When air rushes out of the lungs, it sets the vocal cords of the larynx in motion, producing different tones which are modified as the air goes through the resonating head and throat cavities. Timbre, due to overtones, also determines the quality of the voice.

As we know, speech is basic in human communication, and the ear is remarkably accurate in detecting speech sounds. Even when the sounds are distorted, words can usually be comprehended. In our perception of speech some kind of integration takes place in the ear and the brain, the

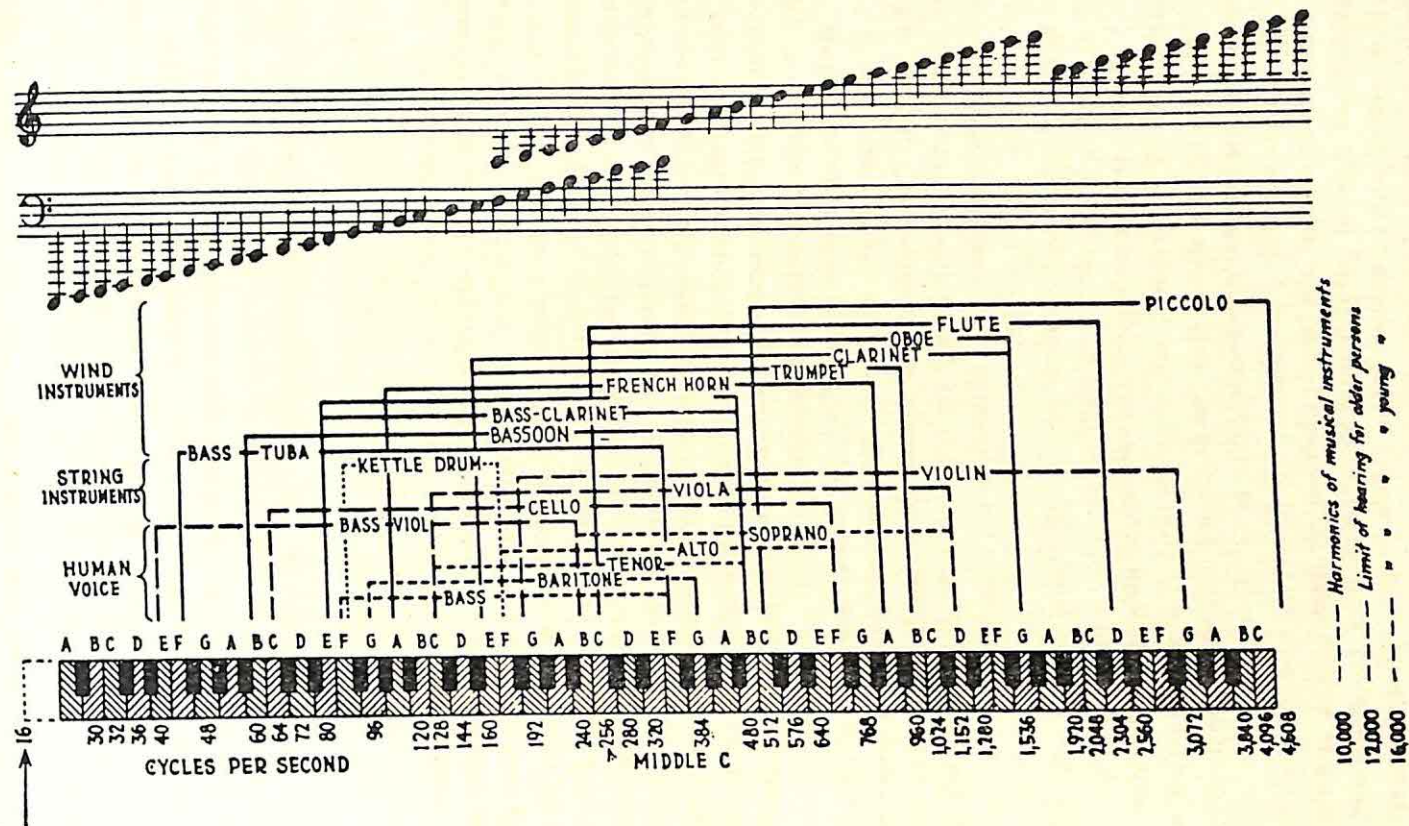


FIGURE 14

SOUND FREQUENCY CHARACTERISTICS. (Reproduced through the courtesy of the Maico Co., Inc.)

exact nature of which is unknown. Injury to the brain can cause the language disorder called aphasia, where a person cannot communicate although the vocal mechanism is undamaged.

What is called *masking* is the phenomenon whereby one sound obliterates another. Thus a loud tone generally masks a soft one. In spite of masking, we can distinguish separate sound patterns pretty well; otherwise we could not hear a person talking where there are other noises.

What do we mean by pain?

The sensation we know as pain is experienced frequently. Some writers claim that the organism can feel only the stronger of two pains: a greater pain cancels a lesser one, though one may be conscious of both. Some people can stand more pain than others, men seemingly can stand more surface pain than women, but women can stand more internal pain than men. A number of recent investigations have indicated that individual differences in pain are largely due to the way a person reacts emotionally to the stimulus. Past experiences with pain, which may be *unconscious*, apparently cause more pain than the stimulus would warrant. Insects and worms evidently do not feel pain: cut a worm in two, and the two worms will crawl away, seemingly undisturbed.

By introspective observation Titchener found four kinds of pain: prick, clear pain, quick pain, and ache. Certain body areas are more painful than others. The cornea of the eye and the tympanic membrane of the ear are the most sensitive, while the inner cheek and the rear of the tongue are relatively insensitive (8). Consequently, it does matter to you where you get stuck with a needle.

If any of our sense receptors are strongly stimulated we will feel pain. Strong lights, loud noises, and even strong odors can induce pain. Miller (9) showed that some noises can be almost unbearable because of the pain involved. Although it was once doubted, it now seems that we can adapt to pain as we do to other types of sensation, and the pain grows less intense as the adaptation process continues.

The free nerve endings in the skin are numerous and are the receptors for two kinds of pain, the bright flash we get from a prick and the more lasting dull type of pain. The kind of nerve fiber involved determines which type of pain experience is felt. However, there remains considerable doubt about these skin sensitivities, a fact which has led investigators to

add to the number of our sensations. New kinds of experience are invariably found to lie within these skin senses, and previously all such sensations had been lumped together in one sense—touch.

What is pressure?

The sense of pressure involves different kinds of sensation. There are “deep” pressures, “pointed,” “diffuse,” “tickle,” “vibration,” and others. While it is correct to say that pressure and pain give separate kinds of experience, physiologically this is hard to explain. Both sensations can be mapped by kinds of stimulus exploration to locate the spots, that is, by carefully going over the surface with a needle or an electric spark, but while pressure receptors exist, not all have been satisfactorily identified. On the other hand, our sense of touch permits us to make many judgments about an object. How hard or soft a thing is, how moist or dry, how rough or smooth, and the like are evaluations that can be obtained with considerable accuracy. Tension within the skin tissues is the stimulus for the sensations of pressure; sensory adaptation applies also to pressure, and when a stimulus is applied steadily the sensation will fade and finally disappear.

How much heat can we stand?

Since our bodies have separate receptors for warmth and cold, we can list two more senses called the thermal senses. If a person takes a stylus which is a little cooler than the temperature of the skin, he can detect points that feel cold; with a warmed stylus he can also find points that feel warm. The demonstration shows that there are separate points for cold and warmth sensitivity.

When an object has the same temperature as the skin it is experienced as neither hot nor cold. We call this temperature the *psychological zero* point, or the point of indifference. However, because of sensory adaptation, this point is not constant. If you step into a hot bath, you may feel the water as quite hot, but after a while it will be “just right.” The hot water has raised the sensitivity of the body to the point of indifference. There are limits, of course, to this adaptation, and the higher or lower the temperature the longer it takes to adapt.

“Paradoxical” cold is the term used to describe the situation where a

warm stimulus applied to a cold point produces "cold." The existence of paradoxical warmth, however, is questionable (10). In fact, there is doubt as to whether psychologically there is such a phenomenon as heat at all. To many, heat is merely a compound of warmth and cold, and is not stable. If correct, heat is only a degree of cold.

What senses depend on chemical stimuli?

It is claimed that we really know little about our chemical senses. Far back in the nose in a small cavity are the receptors for our sense of smell. Vaporous particles in the air stimulate these in some manner not definitely known, but all odor substances are either gases or vapors. While no one has classified all odors, Henning (11) has grouped them into six basic classes: fragrant, ethereal, resinous, spicy, putrid, and burned. Crocker and Henderson (12) have said that four classes are sufficient: fragrant, acid, burnt, and goaty.

Whether we believe an odor is pleasant or unpleasant is probably due to previous experience with it. As in other sensory experiences, we can adapt to an odor, and after about ten minutes we no longer notice it. This is fortunate since many occupations demand working in the presence of disagreeable odors. Also an odor can mask another, and no doubt this is one reason why human beings use perfumes and deodorants.

We do not use our sense of smell as much as our other senses, presumably for one reason, that society does not consider it dignified for us to go around sniffing things. However, we do know when this is lacking: our taste for food is clearly affected when we have a cold in the head, and one very good reason for liking food is its odor. The odor of onions frying and a steak broiling can start one's digestive tract working immediately. Observe an animal use its sense of smell: often long before it can see or hear another animal it can smell it. Moncrieff once showed how a female Great Peacock moth attracted forty male moths to the laboratory in one evening, although these moths were rare in the neighborhood.

How do we experience taste?

Taste sensitivity depends on complex cells located in the ridges of the tongue, known as taste buds. It has been estimated that there are about nine thousand of these buds. If we are to taste a substance it must be solu-

ble in water, although the saliva in the mouth will ordinarily take care of this. There are four generally accepted basic taste qualities: salt, sour, bitter, and sweet, and these are located in fairly distinct areas, or zones, on the tongue.

Temperature of the stimulus is important in taste. Color also is capable of affecting the taste of a food. Further, we can neutralize a sweet or a sour taste by combining sweet and sour foods or drinks; we put sugar in lemonade to neutralize the sour lemon taste. Likewise, by what is called taste contrast, sweet, sour, and salt substances will interact with each other to increase the taste intensity of one taste because of the action of another (13). Adaptation also takes place from continuous exposure to stimuli of taste.

That individual differences exist in taste sensitivity is shown by the experiments with PTC (phenyl thiocarbamide), a substance that is tasteless to some people and reveals what is called taste blindness; for others the substance has a bitter taste. An inherited, recessive characteristic is thought to be responsible for this experience. However, it is far more usual that our normal taste likes and dislikes are the result of learning: the perceptions that we have of certain foods are really learned attitudes of one sort or another, as we shall see in a later chapter.

Are there specific nerve energies?

Taste sensitivity apparently supports the classical psychological *doctrine of specific nerve energies*. This holds that the different nerves have specific and different functions, and that the quality of a sensory experience is determined by the receptor that responds to the stimulus. Our eyes, for instance, cannot respond to sound waves, our ears can respond only to sound stimuli. Experimenters in taste have concluded that *patterns* of fibers respond to give a sensory quality: an acid stimulus will stimulate three types of fibers, a salt stimulus will stimulate only one type (14). However, the original doctrine of specific nerve energies held that a specific nerve or neuron would have only one function no matter what the type of stimulus was, giving off its specific energy whenever it was so stimulated. A "red" cone in the eye would be stimulated by a red wave length, and the resulting experience in the brain would be interpreted as red. If you were struck in the eye, a red cone being stimulated, you also saw red. Some now think that this is too simple an explanation. Certain

experimental data indicate that with continued stimulation the same skin spot can cause different qualities of sensory experience. Specific receptors no doubt determine quality of experience, but the *pattern* of other active fibers apparently plays its part in the quality of the total experience.

What is meant by the "sixth sense"?

This term usually refers to the muscle or, kinesthetic, sense. Kinesthesia means "feeling of movement," and the receptors for this sense are sensory nerve fibers in the muscles, tendons, and joints of the body. While we are rarely conscious of them, they are important and necessary in our movements, and it is only after some disease has affected them that we notice the lack of coordination and control. In the usual course of events we perform motor activity automatically: the professional typist does not look at nor think about her fingers when she types; we are not conscious of putting one foot in front of the other when we walk; we judge the weight of objects by their "heft."

The kinesthetic sense is allied with our sense of balance, or equilibrium. We know that the semicircular canals of the inner ear have the function of maintaining body balance, but this "labyrinthine sense" gives no actual sensations by itself. It is the combination of this with kinesthetic sensations and vision that furnishes us with awareness of body position. Motion sickness results from a conflict or lack of coordination between these various sensations: a person gets dizzy when an elevator starts or stops. We do not see the car move, but we have a sensation of falling and stopping. Yet when we whirl about too rapidly we get a sensation of dizziness due to nystagmus, the involuntary jerking about of our eyeballs: dancers learn to control this by fixing their eyes on one point as they turn, and aviators learn to watch the ground rushing by without experiencing dizziness.

The organism always functions as a whole

More and more we are discovering that the organism is an active, not a passive structure; it always reacts as a total organism. When we extend our arm there are stretchings of muscles and tendons in other parts of the body, so that balance is maintained as well as movement. In responding to the many sensations an organism meets it will respond with meaning.

It organizes all the different stimuli into a whole which has some meaning for it.

The gestaltists declare that sensations are perceptual configurations, and when we experience a specific sensation our other senses are likewise involved. In its perceptions the organism is aware only of the wholeness of the varied specific energies stimulating it, not of the specific energies as they exist in their separate entities. When we stop for a red traffic light we are not aware of the various energies as such, but we respond because of the "wholeness" of the experience.

It is true that our sense receptors are specialized: the eye, the ear, the nerve endings in the skin, and so on, have specific functions, but they function because the whole organism is functioning in the total sensory experience. This is seen more clearly when we narrow our perceptions. When we see a steak cooking, we also hear it sizzling and smell its odor. We see its color, estimate its toughness, our mouth may "water," and we may be reminded of the wonderful steak we ate some time ago. The perception, then, is a total, or unitary, experience, including various sensory stimulations and mental reactions.

Long-forgotten sensory experiences can be aroused by stimuli and associations related to the forgotten event may be recalled thereby. The French novelist Marcel Proust in the novel *Swann's Way* furnishes a good illustration of this. One day his mother gave him a little cake (a "petite madeleine"). When he had tasted it he began to remember long-buried memories from childhood associated with his eating a similar madeleine. The stimulus set off the memories, but the meanings of the experience were in the person, not in the stimulus.

The sense receptors themselves have been extensively studied. The structure of the eye and the ear, for instance, are studied by most students in some course or another, and have not been reviewed in this book. We also know that the sensory nerves bear their messages to the brain and to specific centers in the brain. When a particular area of the brain is destroyed, the organism cannot see or hear, depending on the part of the brain and the area destroyed. Damage in what are called prefrontal or frontal "association" areas of the brain result in a lessening of mental activity. Obviously without the brain there would be no sensory experience.

Although we believe that different areas of the outer layer of the brain, more precisely called the cerebral cortex, have different functions, we have

found recently that these anatomical areas may not mean nearly so much as was formerly thought. Thus what was thought to be a purely sensory or purely association area has from more recent investigations been shown to have other functions as well. This by no means is intended to suggest that the work of physiological psychology is not important in the description of human behavior. It is extremely desirable that research and experimentation be continued to the place where precise information is furnished about the brain and the sensory receptors, but at the present time the student of behavior should proceed cautiously with an explanation that is primarily physiological.

SUMMARY

That our various senses play a most important role in our behavior cannot be denied; without our senses we would know nothing. Our sense organs are our only gateways to the external world, and hence are essential to knowledge. That they function in our perceptions is evident, yet how our perceptions organize the sensations into meaningful patterns is still a problem of great complexity. The sense receptors can transform the energies of the world into sensations, but how these become meaningful to the perceiver is in many ways the old problem of mind and body. The problem is allied with the problem of consciousness or awareness, something psychology would like to explain but still finds exasperating. As Eddington says, "We are acquainted with an external world because its fibres run into consciousness; it is only our own ends of the fibres that we actually know" (15).

The *experience* we have as the result of a sensation is caused by different energies in the form of stimuli impinging on our nervous system, yet the nervous system is not the sole explanation of the experience. Although the brain is the bodily organ of what we call the mind, the brain is not red, blue, green, or yellow. In the brain the sensations are organized and modified, and the mind is able to separate and abstract a particular sensation which is at once surrounded by wants, imagination, memories, and thoughts. This is all part of what we have called a perception.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Some sensory phenomena

1. Gaze steadily at the illustration on page 206. What do you notice? Can you offer an explanation?
2. Your instructor will place a small glass vessel of liquid on his desk. He will remove the stopper, and you will raise your hand as soon as you can detect the odor of the liquid. Be sure to raise your hand just *as soon as you detect it*. Describe the odor introspectively.

PROJECT II

A. Hearing theories

Assignment: Read "Theories of How We Hear," in Henry E. Garrett, *Great Experiments in Psychology* (3rd ed.; New York: Appleton-Century-Crofts, 1951), Chap. 14, pp. 296-97.

Questions for Class Discussion

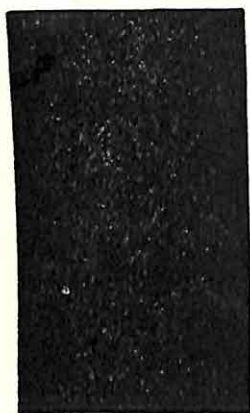
1. Describe the piano theory of Helmholtz.
2. What is the telephone theory?
3. How is the volley theory an improvement on this theory?
4. Helmholtz said that the basilar membrane resembled a piano keyboard. Locate and describe the basilar membrane.
5. One of the above theories is often styled the place theory. Which one, and why, would you conclude is now called this? You will find a discussion of the material pertinent to these last two questions in C. T. Morgan and E. Stellar, *Physiological Psychology* (2nd ed.; New York: McGraw-Hill Book Co., 1950), Chap. X.

B. How we localize sounds

Assignment: Read "Auditory Localization and Auditory Reversal," in Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart and Co., 1949), Chap. 15, pp. 312-19.

Questions for Class Discussion

1. How do we localize a sound to our right and a sound to our left?
2. What is meant by sagittal sound?



3. In Young's pseudophone experiment explain what happened. Can you visualize the pseudophone?
4. What conclusions can be drawn from this experiment?
5. Describe the means we use to localize sounds.

PROJECT III

Topic: Measuring your pitch discrimination

Procedure: Your instructor will play the K-D record on pitch discrimination.

While the record is being played you will hear 40 tones. On a sheet of paper make a list numbered 1 to 40. If you think that a tone is the same in pitch throughout, write alongside the number S for same. If you think that the tone changes in pitch, write D for different. After you have completed the 40 tones your instructor will read the norms for this test. Compare your scores with these norms.²

Questions for Class Discussion

1. What is pitch?
2. Would practice on this test improve your score?
3. What implications has this test for a person who wants to become a musician?

RECOMMENDED READINGS

- BORING, E. G. Attributes of Sensation. In *Outside Readings in Psychology*, HARTLEY, E. L., BIRCH, H. G., and HARTLEY, R. E. New York: Thomas Y. Crowell Co., 1950, No. 25.
- CARMICHAEL, L. The onset and early development of behavior, In *Manual of Child Psychology*. Ed. by L. Carmichael. New York: John Wiley and Sons, 1946, Chap. 2, pp. 121-38.
- CHESKIN, L. *Color Guide for Marketing Media*. New York: Macmillan Co., 1954.
- GELDARD, F. A. *The Human Senses*. New York: John Wiley and Sons, 1953.
- MORGAN, C. T., and STELLAR, E. *Physiological Psychology*. 2nd ed. New York. McGraw-Hill Book Co., 1950.

² Kwalwasser, J., and Dykema, P. W. *K-D Music Tests, Manual of Directions* (New York: Carl Fischer, Inc., 1930), p. 34.

9

Perception of the Stimulus: Configuration or Patterns

PROBLEMS OF PERCEPTION

Why do our perceptions agree and disagree?

OBJECTIVE FACTORS IN PERCEPTION

What are some of the objective factors?

INDIVIDUAL FACTORS IN PERCEPTION

How does the total personality style affect perception?

How does action pattern perception?

How do habits affect perceptual patterns?

How do interests affect perceptual patterns?

Is a perceptual field ever meaningless?

HOW OUR PERCEPTIONS AGREE

IN THE PREVIOUS chapter it was noted that the whole process of perceiving the stimulus has its beginning in the activity of the nervous system. Somehow nerve energy is transmitted to more or less specific parts of the brain, and we become conscious of color, sound, flavor, odor, movement, touch, balance, heat, cold, and pain.

In other words, special sense organs (like the eye, ear, and skin) receive energy from within and without the body and relay it along specific pathways to the brain, so that we become *aware* of the meanings of these external and internal goings-on. Thus we say that we *see* an automobile,

hear the doorbell, *smell* the fish, and *feel* the toothache. If we call our becoming aware of redness, sweetness, painfulness, and roughness *sensation*, how do these separate sensations unite and organize themselves so that we *perceive* an automobile and not merely colored patches?

PROBLEMS OF PERCEPTION

Perception is the psychological process that makes sense out of sensation. However, it is doubtful that we are ever aware of separate and pure sensations of redness, sweetness, and so on. Certainly by the time we are old enough to observe our experience we are aware only of more or less well-defined objects—automobiles, sugar, toothaches—and not separate sensations.

Not only is our experience a selection from many available stimuli, it is an orderly, patterned selection. Whenever we are awake there is a scene before us containing objects arranged in more or less orderly fashion. In front of me is a typewriter. In it is a sheet of white paper. Sounds come from the typewriter, and I can see my fingers moving now slowly, now faster. The typewriter, the chair, and I are all resting on the floor. There are a hundred or more other objects in this room if I care to look at them, and a host of noises I can hear if I care to listen.

This is perhaps a roundabout way of saying that the world we perceive is not a jumble. Chairs are not tables and neither are glasses of water. There is an order in my experience that enables me to act with some degree of efficiency. When I reach for the glass of water, I do not, as a rule, end up with a chair in my hand. Is it the world itself that produces this organization and order? Or do I in some way produce these orderly arrangements? Or could it be a combination of the world and myself?

Why do our perceptions agree and disagree?

Everyone has heard the old story of the blind men and the elephant. Each touched a different part of the animal and described it differently. It is a commonplace that our perceptions do not always agree. For one thing, as noted in the preceding chapter, color-blind people apparently do not perceive colored objects as do people with normal eyes. But even those who have nothing wrong with the senses do not always agree on what they see, hear, feel, and taste.

It would be difficult to get a dozen people selected at random to agree that one cup of coffee, for example, is sweeter than another unless the difference in the amounts of sugar is considerable. This is understandable since no two persons or no one person at different times receives the messages from physical objects in precisely the same way.

Despite these differences, we do manage to work together and talk together fairly well, which means that our perceptions are enough alike so that we can "mean" things in common. If I say, "Look at that airplane," those who care to listen to me and who understand the English language will probably look for an airplane and not a submarine. Language and common action would be impossible if we could have no common meanings. But common meanings mean common perceptions. Therefore, we have to account for both the differences and the likenesses in perception.

OBJECTIVE FACTORS IN PERCEPTION

The answers to the questions that we have raised lie in the way our experiences are selected and organized in perception. Here we have to think of two sets of factors: one we may call phenomenologically *objective* because they seem to be part of the world we perceive and remain fairly constant for most observers. The other set are *subjective*, or individual, because they originate in the person who is doing the perceiving.

What are some of the objective factors?

Figure-ground. Whenever we are conscious we are in a perceptual field. If you are reading this book, then the printed page occupies most of your perceptual field. You see the book, you feel it, you see your hands holding it, and some other parts of your body. Perhaps you also see part of the chair on which you are reclining, parts of the room and its contents. You may be hearing faint strains from the radio in another room and there may be street noises. In addition, you may have feelings of hunger, tension, sadness, and what not. All these awarenesses make up your perceptual field of the moment.

Not everything in it is equally prominent in our awareness. We say that we attend to this or to that but not to everything equally. But no matter how our attention wanders—to this object or that, this sound or that, this flavor or that—there is always a field in which something stands

out and something is a background for it. If I look at the wall, the picture stands out from it. If I look at the door of my office, the numbers painted on it stand out as figure and the glass becomes background.¹

Sometimes (although usually we have to make up this situation) figure and ground seem to interchange (see Fig. 15).

Koffka (2) believes that the very first experiences of the infant are probably no more than impressions of figures on a ground: for example, a luminous spot against a less luminous background, a something hot or

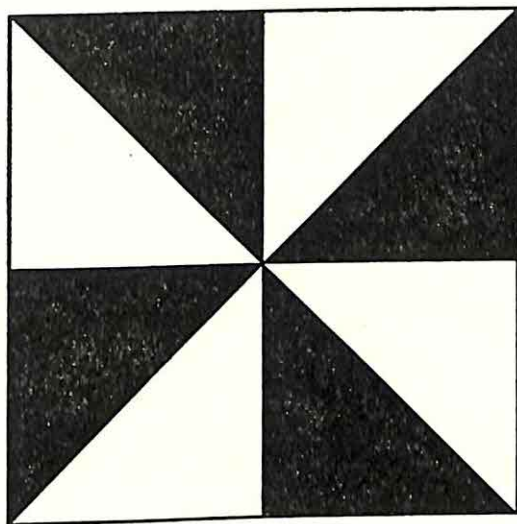


FIGURE 15

Are these black figures on a white ground, or white figures on a black ground?

cold upon the skin that stands out from the normal skin temperature as a figure does on a ground. Warm colors, too, seem to stand out against the grays.

The figure-ground character, therefore, seems to be a quality of the perceptual field itself. The importance of this character can be shown when the figures do not stand out clearly. In a murky twilight the shapes of automobiles, pedestrians, roadway, and curbs seem to blend, and nothing stands out as figure. Hence twilight is generally regarded as a particularly hazardous period for the motorist. The figure-ground char-

¹ The terminology of figure-ground is attributed to Rubin (1).

acter of perception is especially clear in hearing, when a conversation is heard against a background of other sounds.

Segregated wholes. In the perceptual field the figures that seem to summon our attention are whole objects, which themselves are made up of parts that seem always to stay together and travel together. The typewriter, the door, the fan, the light, these are unified and separate wholes. They do not merge into other objects.

Some psychologists argue that we have learned by experience to sort out our sensations so that one cluster of them is the chair, another is the table, a third is the tree. From this it would seem to follow that, if it were not for our parents or our culture telling us what to put with what, we might very well scramble things up indiscriminately; indeed, an infant is supposed to have precisely such a scrambled view of the world until he learns by manipulating objects just what is to be regarded as a separate "thing."

Although infants have never given testimony on the matter, it is hard to believe that they have to wait for instructions before regarding the bottle as a unit or the mother as a unit. To be sure, the patterns or configurations of the infant are probably vague, but as soon as he can begin to act or to react things *have* to stand out against a ground.

Koffka (2) believes that the first reactions of the infant are to the sound of the voice or the angriness or friendliness of a face rather than to the exact features of that face. Köhler found that chicks react to *patterns* of shades of gray rather than to specific separate shades (3). In other words, even where learning has had but little chance to operate, *pattern* or configuration is a feature of the perceptual field. And by pattern is meant that the field is cut up into segregated wholes, units, clusters, that seem to be natural wholes.

Similarity. When we are at a movie we watch the screen and listen more or less to the background music. Although the sound waves and

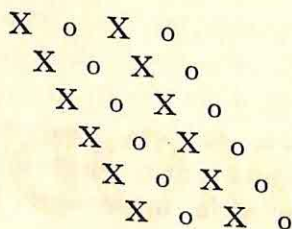


FIGURE 16

light waves hit our sense organs at the same time, we do not confuse the sounds with the sights. The sounds go together to form a flow of melody; the sights go together to form something else. Thus the same sorts of things tend to be brought together to form a unit. In Fig. 16 we are likely to group the crosses and circles separately.

Proximity. Other factors being equal, items that are near each other are more likely to be grouped together into wholes than those that are scattered. Thus in Fig. 17 the groupings would tend to be * X and L M rather than XX or MM. Here proximity or nearness overcomes the principle of similarity. But in Fig. 16 similarity overcomes proximity (4).

| | | | | | |
|---|---|---|---|---|---|
| * | X | X | * | * | X |
| L | M | M | L | L | M |

FIGURE 17

Inclusiveness. Other factors being equal, the figure that uses up more of the available elements will tend to be perceived in preference to one that uses up fewer of these elements. Thus in Fig. 18 we tend to see a rectangle rather than a triangle made up of either X's or O's.

| | | |
|---|---|---|
| X | O | X |
| O | X | O |

FIGURE 18

Closure. In the perceptual field the strong units or patterns tend to be the closed ones, that is, those whose boundaries have no break in them. In front of me are two office desks for all practical purposes identical. Yet each is separate because each has its own continuous boundary.

If you let your friends look at the letters in Fig. 19 for a rather short interval—about half a second—and ask them to draw exactly what they saw, they probably will not reproduce broken letters, although the breaks in Fig. 19 are definite.

MOD

FIGURE 19

In hearing we get the same tendency for closure. A tune broken off abruptly tends to finish itself out in our minds, and the piano player can leave out a good many notes during a piece without our being aware of it.

We are not happy with a story or play that has no definite ending—in which all the questions are not answered. “They lived happily forever after” is, of course, the ideal closure. Nor is it any wonder that from the earliest times the law of unity has been stressed in all works of art, for unity means a closed boundary—a beginning, middle, and end.

Indeed, whenever we watch human activity, we tend to look for its end (or its goal). The activity seems open (not properly closed), but moving in the direction of closure (5). Each element in a pattern seems either perfectly balanced by other elements or trying to achieve such balance.

Aimless activity or purely repetitive activity is disturbing because we cannot close it. Kurt Lewin, pioneer of field theory in psychology, regards the human mind as a dynamic tension system and all behavior as an attempt to relieve tension and to establish equilibrium, and equilibrium is another name for closure.

The importance of closure is shown in another and more indirect way by what has been called the Zeigarnik effect. Zeigarnik (6) found that interrupted tasks tended to be recalled better than completed ones, although the superiority of the unfinished tasks in this respect disappeared after twenty-four hours. In other words, the organism once set to achieve equilibrium by finishing a given task tends to persist in that set, whereas the completion of the task closes the situation and removes the set.

Do we experience closure in all sense departments? In taste we do speak of “something lacking” in a dish, even when we are not quite sure just what is lacking. For some people, a dinner without a dessert is unclosed. To a hound, gaps and closures in scent might be just as impressive as visual gaps and closures are to us.

Closure is quite evident in the kinesthetic and balance senses. All movements have a pattern of some kind, and interruptions of them are gaps that are sensed as gaps—sometimes rather violently, as when we stride for that extra stair tread that is not there. Good movements in most sports require a follow-through to effect closure. And to be “off balance” is to describe literally a broken or disturbed equilibrium.

In the light of all these examples we can say that closure is one of the

most strategic features of the perceptual field. We can say that, other things being equal, the strongest units in the field will be the closed ones, that we are likely to see the whole field as tending to a closure, and that where the patterns are not strong, that is, where the closure is imperfect, we tend to change it so that it looks as if it had more closure than it really has.

Common destiny. Parts of a figure which have "good" contour are said to have common destiny and tend to form units (7). In Fig. 20 we

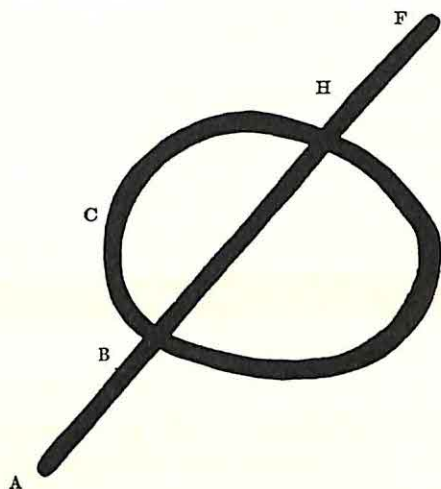


FIGURE 20

would not, as a rule, put the curves and the straight elements together, for example, A B C plus C H F, and so on. Rather, we perceive a straight line drawn through a circle, because parts of the straight line seem to be continuous and belong to each other. The same seems to be true of the parts of the circle.

Common movement. Elements are grouped when they move simultaneously and in a similar manner. If two projectors throw dots on a screen so that they are scrambled together, no groupings seem possible. But if one projector is moved, its dots combine and are distinguished as a group from the motionless ones (7).

Prägnanz or pregnance. Very important for grouping is the tendency of a set of elements to get into the best order and strongest form that circumstances will permit. "Good" here means regularity, symmetry, unity, harmony, maximal simplicity, and conciseness (8). It is pointed out that

the lens of the eye adjusts itself so that the sharpest image possible falls on the retina. Dots arranged in approximately circular patterns are seen as if they were really circular, and an angle of nearly 90 degrees appears as a 90-degree angle.²

Much of the work of the Gestalt school has been devoted to discovery and demonstration of these whole-part relationships. The point of it all for our understanding of the perception of the stimulus is that *these*

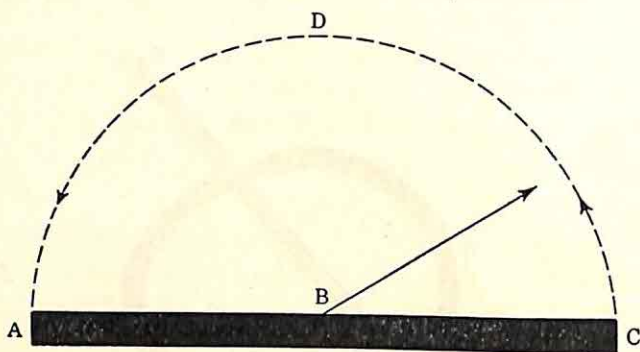


FIGURE 21

characteristics of patterns are found in the perceptual field and are not the product of our gradual association of separate sensory elements into clusters or collections.

Much of the experimentation has been done with animals to show that

² Wertheimer points out that in the figure above (Fig. 21) as BC is rotated upward to the position BD, the angle formed at B is seen as acute until it becomes 90 degrees, and as BC approaches A it becomes an obtuse angle. Now some of the angles made by the rotating line BC are stronger psychologically than others. For example, the 90-degree one is especially so and the 45-degree one after that. Between these are other less clear-cut acute angles. As the line approaches and passes D, we see the angle at B as more or less than 90 degrees until it almost hits the 135-degree mark. After that we think of the angle at B as more or less than 45 degrees. This illustrates the principle of prägnanz of the favored or best forms (4).

If we watch BC rotating around B we see the angle DBC for a little while even after D is passed, but suddenly we are perceiving the angle ABD. In other words, the rotating line is part of a sequence, and the pattern formed by its being the *end* of one sequence is different from being the *beginning* of another. This is another way in which the whole determines the appearance of the part.

In still other arrangements, it is direction that seems to be the dominant factor. Thus in a design such as S the two vertical lines are seen as separate from the S. In other words, the parts of the S are continuous of each other and seem to follow out a certain direction. And this direction is maintained despite the intrusions of the vertical lines.

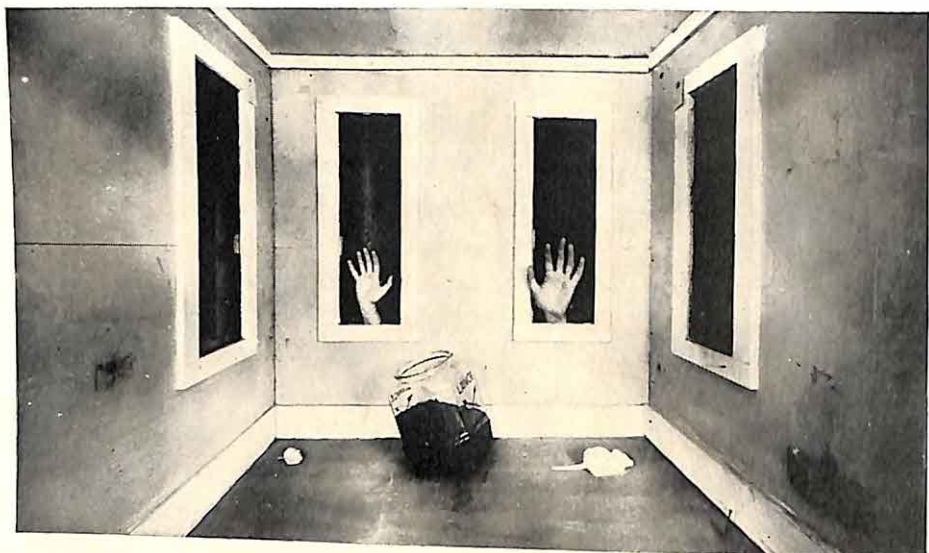


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ILLUSTRATION 15

What is happening in this picture? Figure out your answer and then look at the bottom of the page for what is actually happening there. What factors influenced you to give the answers you arrived at?

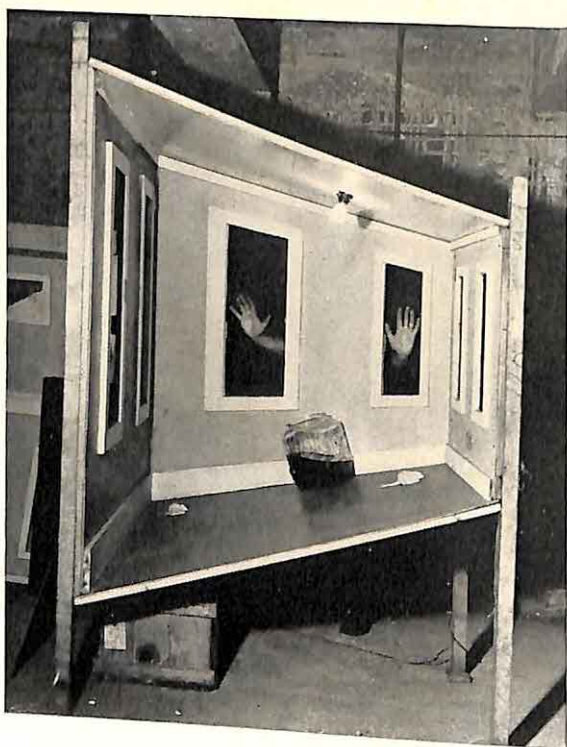
Umpire Bill Stewart is calling Shortstop Pee Wee Reese out at first.



Courtesy LIFE Magazine
© TIME, Inc.

ILLUSTRATION 16

The tipped jar in the first picture does not make us see the room as anything but rectangular. But in the second picture we recognize the room as *not* rectangular and the jar is no longer tipped.



Courtesy LIFE
Magazine
© TIME, Inc.

they, too, see things in patterns if the field of their perception is clearly and strongly structured. Experiments with ravens, jays, and bees seem to indicate that the perceptual fields had strong organization especially in terms of boundaries of objects (9).

In Figs. 22 and 23 the vertical lines seem curved even when we are sure they are straight. But, in both, the curvature follows the spreading out of the diverging lines. The vertical line seems to want to partake of this fanning out.

In Fig. 24 the two center sections seem to be of uneven length because we are perceiving the whole figure in each case, and the lower whole is much larger than the upper one.

In all these the character of the whole figure affects the way a particular part is perceived.

Constancy. As a man walks away from us, the image which he casts on our retinas gets smaller and smaller, yet we continue to judge him to be of about the same size. An illuminated piece of coal may reflect more white light than a piece of white paper in a deep shadow, but we would promptly say that we see the coal as black and the paper as white. A penny is rarely seen by us as a perfect circle, yet we rarely describe it as an ellipse.

One explanation for this constancy is that we have learned through previous experience that pennies, when held directly in front of us, are round or that in shaping them we have to provide means for making them perfectly round. We *know* that the paper is white and the coal black. This may be the correct explanation, but in that case either we do not *see* the penny as elliptical or we learn to ignore what we do actually see. Gestalt theory would explain these constancies as instances of our perceiving strong configurations. The size of a man, especially in relation to other objects, is a strong pattern and changes in the images cast on the retina do not affect it very much. Children's drawings do not show much perspective, and it does not bother them particularly. Apparently they tend to see the strongest patterns, that is, the simplest ones, and they recall them in the same way. So they really *see* the penny as round, for this is the stronger form than the ellipse, and they perceive white-paper, not just white and paper, and black-coal, rather than black plus coal (10, 11).

Just as the objects within the field of perception seem to form little independent wholes with their own boundaries and stand out as figures against

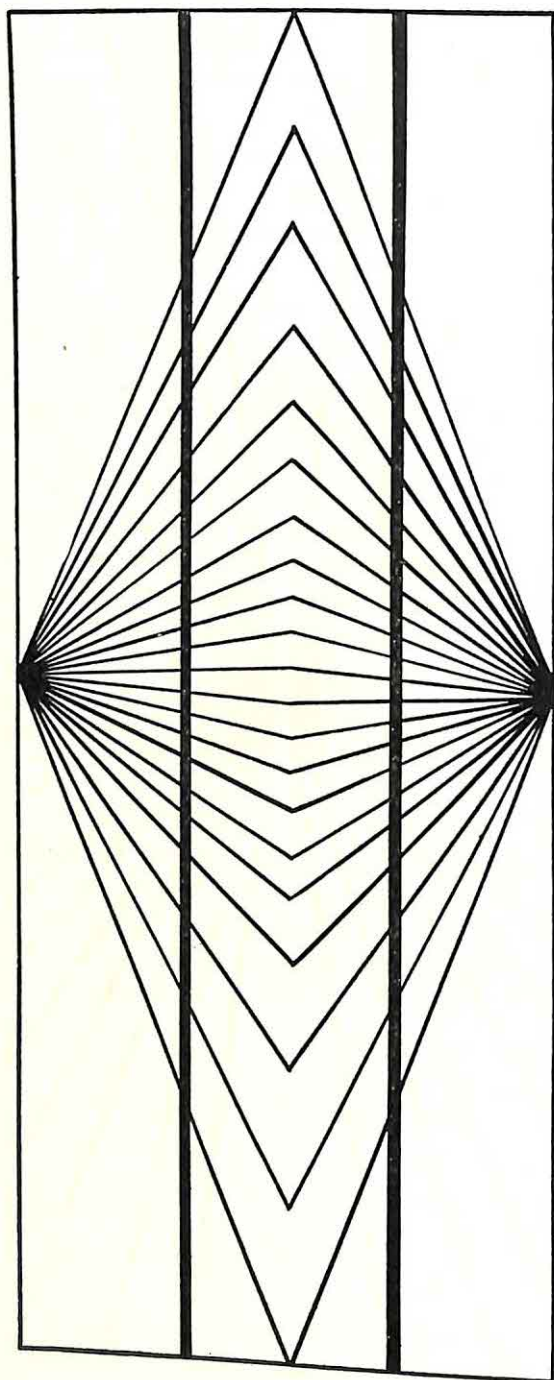


FIGURE 22

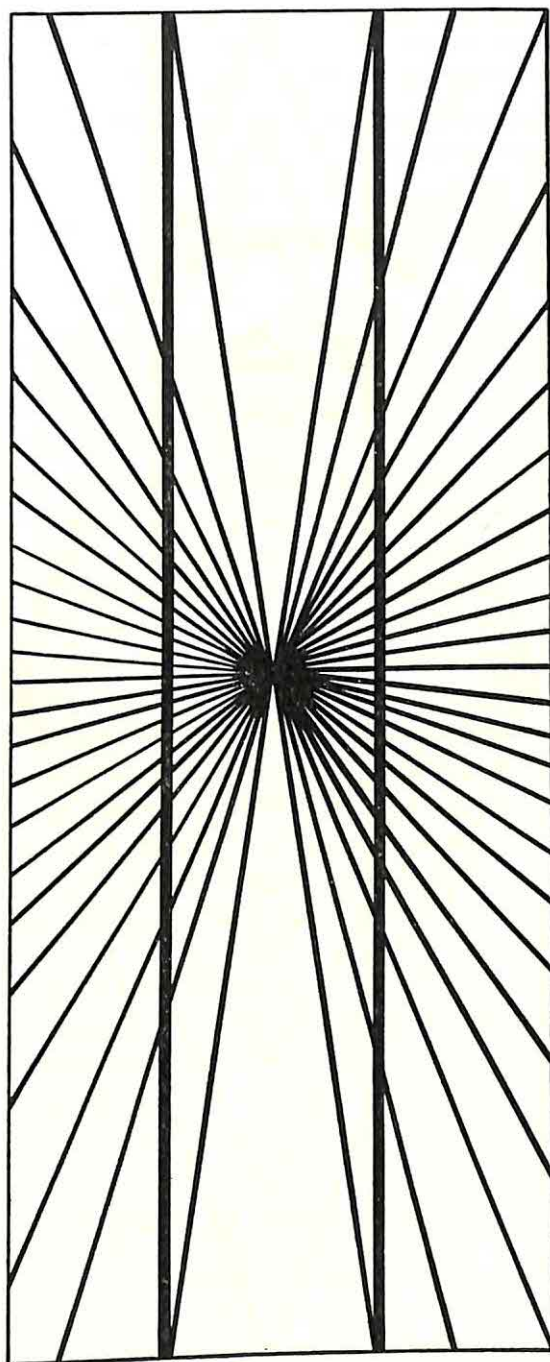


FIGURE 23

a neutral ground, so the field as a whole is made up of its various parts. As such, we would expect it also to have qualities that belong to it as a whole. Thus if we speak of the sea as calm or the melody as lively or a situation as threatening we are not speaking of separate parts as parts, but of qualities that permeate the whole.

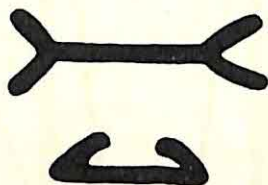


FIGURE 24

We recognize a razor as sharp, whether it be a small or large razor, whether it is on the table or the shelf, whether we touch it or look at it. Furthermore, melodies are rough or smooth, tones are bright or dull, colors are warm or cool. Where are these characteristics? In the perceptual field itself? Or do we project them from our selves onto this field?

If we consult our experience, the answer would seem to be that the sea looks angry and not that it is I who am angry with the sea. Our ordinary experience and our ordinary speech are witness to that, but in the appreciation of art this becomes a peculiarly important problem. The artist, if he is to be successful, somehow must make his paintings or his music seem to wear these emotional qualities on their surfaces.

What makes us doubt that these qualities and perhaps some of the others discussed in this chapter are in the object as we perceive it is that people *do* vary in what they perceive.

Clearly, *how* the field is structured does seem to depend on the observer as well as on the situation itself. What are some of the factors in the individual that shape the way in which the perceptual field will be organized? In other words, what kinds of patterns does the person create in the perceptual field?

INDIVIDUAL FACTORS IN PERCEPTION

Each one of us is an organized cluster of experience. We have all traveled somewhat different routes of both heredity and environment, so that each of us has a characteristic style of life and action.

One person is decisive, quick in decision, almost impulsive in action; another is a worrier, never quite able to make up his mind about anything. Some things we regard as dangerous; some as opportunities. Some things make us think well of ourselves; others prevent our falling asleep as they produce guilt, shame, and even anger.

All this is merely to say that the ego, or the I, has an organization and structure just as the perceptual field has. It, too, can be structured strongly or weakly: it can be more or less rigid. For example, a young man with a 20-year-old ambition to become a physician has a strong wish pattern. Nothing trivial is going to shake or drive it out of its dominant position in the pattern. Or a young lady has a profound fear of her father, or a man has a horror of spending his time on what his colleagues might regard as trivial.

Other chapters will deal with the various phases of this ego-structure. Here we are concerned merely with asking what happens when an ego-structure comes together with a perceptual field that has a structure of its own. Which dominates and under what conditions?

How does total personality style affect perception?

The first question is whether the individual's total personality style makes a difference in the way he reacts to a perceptual field.

In a long series of experiments Witkin and his associates asked observers to adjust a rod in a scene they were viewing so that it looked vertical. At times the scene was tilted; sometimes the observer's body was tilted by manipulating the chair in which he sat. The question Witkin was trying to answer was: Do we judge the vertical by looking at the visual field or by lining it up with our own feelings of our own body being vertical? (12)

Witkin found many differences among the reactions of his observers. When the observer's body was upright, he tended to use the body as a point of reference. When the body was tilted, the visual frame was more relied upon, but when there was no visual frame available, the body was used exclusively.

People apparently differ in the degree to which they adhere to the pattern of the prevailing field. Some tend to rely more on the field as it is structured. Others tend to use their bodies and to resist the pattern of the field. It is this last fact that led Witkin and his associates to try to find out whether the degree of dependence on the outside field is a clue to the

personality of the observer. There is some evidence to show that this is the case.

Among the conclusions drawn from these studies were the following:

1. Women show a greater tendency to depend on the patterning of the field in making their judgments as to when the rod is upright than do men.
2. Men are more likely to use cues from their own bodies in making their judgments than are women, but when it is easy or necessary to use body cues, women can do so about as effectively as men.
3. The differences in the degrees of dependence on the visual field which were observed in adults occurred in children as young as eight years (13).

Another type of experiment confronts the observer with what is called unstructured or ambiguous material. This is a set of scenes, or lines, that have no strong structure of their own. The observer has a chance to *project* himself, that is, make his own structure when he reproduces what has been shown to him.

Under these circumstances—and all projective techniques such as the Rorschach test and the Thematic Apperception Test (see Chap. 16) are based on this principle—it has been found that the motivations of the observer, his emotional state, his purposes, and many other factors helped to decide what he perceived. Thus one observer may perceive a red portion of a Rorschach card as a butterfly, while another may see it as an atomic explosion (14, 15, 16, 17).

It is clear, therefore, that the weaker the patterning of the perceptual field the greater the freedom to inject our own patterns and designs in what we do perceive. When the external factors are operating weakly, internal factors have their day.

Ames and his associates (18) contrived experiments whereby two different objects produced the same energy pattern on the retina of the eye. The same stimulation pattern can be produced by a short line at a given distance from the observer and a longer line at a greater distance. Or the interior of a room in which the left wall is made larger than the right, the floor sloping, and with the rear wall not perpendicular to the others and having windows in the shape of trapezoids can, by being viewed from a certain point, cast on the retina of the eye the same image as does a normal room. Under these circumstances the observer interprets his experience in terms of certain cues that have become stronger than others. Size is more influential than brightness, and knowing that windows are

rectangular, the trapezoidal images are taken to be due to the peculiar position of the observer.

Perception is far from the simple matter of having sensations strike our sense organs and taking a trip along the nervous system to the brain. No doubt something like that must go on every time we perceive something because without sense organs and nervous systems we would perceive nothing. Yet what the *meaning* of what we perceive has to do with this physiological reaction is still unclear.

How does action pattern perception?

There are times—relatively rare in modern busy life—when we just perceive the world around us and note what it looks like and feels like. We are in what may be called the “aesthetic” mood. That is, we are concentrating on the sense-qualities or the surface qualities of the situation in which we find ourselves. For example, a man may suddenly become aware that he is feeling fine, full of vigor and bounce, even though there is nothing in particular at the moment that he plans to use the vigor and bounce for. Or he may be captivated by the sheer blueness of the sea or sky, or the sheen on the surface of a new car, or the odor emanating from a restaurant or a bakery.

But, to repeat, these moments are rare. For the most part, we are dutifully heeding what is demanded of us by others or by ourselves. Our situations are for the most part goal-structured or demand-structured or action-structured.

Kurt Lewin (19) has developed a method (topology) whereby situations of this kind can be diagramed. It is a kind of psychological geometry, and the space it pictures is *psychological life space* and not merely the three dimensional space in which we and all other physical objects move about.

For example, a goal or a purpose has positive valence, that is, it is that “towards which we are trying to move” even though the “movement” has no physical motion in it. Thus, if my goal is to get the right words to explain what psychological motion is, then I may get those words without moving my body very much. There are obstacles to goals or barriers (negative valences) and there are boundaries to situations (see Fig. 25). We need not go into the details of this “field” theory, except to remark that *how* we perceive a situation will, of course, depend on the field and

our position in it. The kind of patterns that we shall note and the characteristics of those patterns that we shall become aware of will depend also on the way psychological forces are arranged within the field.

We can conclude, therefore, that when matters are fairly normal we attend to those patterns that are relevant to our action. Sometimes the patterns that we have already noted have to be broken up or switched around in order that the action can go forward. Often we have to do this to "solve a problem."

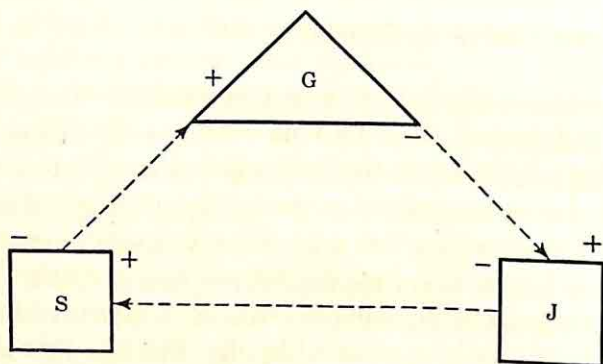


FIGURE 25

If G is infatuated with J, and S with G, and J with S, G is a barrier to J, J to S, and S to G. Each one, therefore, will have a positive valence (attraction) for one of the other and a negative valence (repulsion) for the other. The arrows indicate one pattern of movement in this situation, but G might try to get nearer to J by moving toward S.

A lady was in mild despair because she needed a glass baking dish to be used as a cover for another long flat shallow dish. When such a dish was pointed out on the kitchen table in front of her, she remarked, "But that's a bottom, not a cover." Inasmuch as the bottoms could be used as covers, all the lady needed was to perceive the object in another configuration or pattern to permit action to go forward.

Ames's (20) experiments also bring out the importance of action to perception. In a distorted room (that appears normal) normal objects look out of proportion, and when we try to move them or deal with them in various ways we are in for surprises. But as the subject manipulates the objects the perception gradually changes so that he comes to see the room as distorted in certain ways.

How do habits affect perceptual patterns?

When we perform an action many times we come to be familiar with the situation in which the action is performed. If we repeatedly go to the grocery store and buy a wide selection of groceries, we come to know the appearance of the store, the general locations of various articles, and the particular locations of the articles that we buy regularly. We are forming certain habit patterns.

Habits are tendencies to act, and they thus serve as perceptual selectors. As we begin the rounds of the grocery store we are led to perceive the coffee section, the dairy section, the meat section, one after the other by the habits we have formed. We do not, however, note the color of the paint on the ceiling, nor do we hear the countless conversations going on around us. But a call from someone we know is enough to push groceries into the background and the voice's owner into the foreground.

Habit controls perception when no other competitor for our attention and action is strong or importunate. When there are many competitors for our action—as when the baby is crying, the milk is boiling over, the telephone is ringing, and the dog is chasing the cat through the living room—then perception becomes blurred and chaotic, just as our action becomes chaotic.

Our habits do not decide what patterns the field shall have. Let us say that they will decide—other matters being not too urgent—that we shall attend to one patterning rather than another.

How do interests affect perceptual patterns?

Just as habits are signs that we have repeated certain actions, so interests are symptoms of the kinds of actions and objects that will easily attract and hold our attention. If a man has an interest in farming and a lady in hats, and both look at the picture of a woman in a big sun hat standing in a field of wheat, for the farmer the wheat may be the figure and the girl with the hat may be the ground. For the lady it may be the other way around. If, however, the girl on the poster is painted in bright colors and the wheat in a dull hazy yellow, not even the most confirmed farmer will see her as background for the wheat (16).

Accordingly, if we know a person's interests, for example, his vocation or hobbies (not just what he happens to be interested in at the moment),

then we can expect that, other factors being equal, what is relevant to his interest stands out and what is not relevant recedes into the background.

Is a perceptual field ever meaningless?

Because our actions have so much to do with the way we shall pattern the field, we perceive that the field as a whole has certain characteristics. The situation as a *whole* has a promising, threatening, or indifferent look about it. Threatening to what? Promising to what? Indifferent to what? Obviously to the outcome of the activity that we are about to undertake.

I go on a Monday morning to ask my superior for a raise in salary. This is no hurriedly conceived step, but I have just now brought myself to the point of confronting this man and demanding my rights.

I enter his office and hear him say that if business does not get better soon some staff members will have to be laid off. Immediately my goal seems blocked; the situation looks precarious, almost threatening. The boss himself looks hostile. A moment ago he looked like "one who might accede to a request." Now he looks like someone who may tell me to get out if I do not like it here.

Does this aspect of unpromisingness belong to the perceptual field itself? Or have I dragged it in and projected it onto the field? Does the secretary who has not heard the employer's remarks and who is not planning to ask for a raise—does she "see" the unfriendliness in the inner office?

The answer to this depends on how we define the situation. Part of my situation is the goal I am trying to reach, namely, the raise in pay. To this goal what I have just heard is a barrier, it makes the boss look formidable. But to the secretary the situation is quite different, and as she perceives it no hostility is flowing toward her from the boss; it is not threatening to her goal. The secretary and I, therefore, are not perceiving the same situation.

Suppose now the secretary knows that I am going in to ask for the raise and that she, too, happens to hear what the employer says. Will she see the situation I am in as I see it? Will she say, "The situation doesn't look promising for that raise"?

The ancients spoke of an "estimative" sense that somehow sized up a situation in terms of its potentialities for the observer's welfare. How does a relatively young infant, for example, know that the man who just came into his room should be greeted with frightened crying? We say the baby

perceives the man as a "stranger." But why cry? Is it not because the stranger looks unfriendly or threatening in some way? Is it that the child has *learned* to be afraid of men who do not look like his father? Why is it that fairly large, rapidly moving objects are more likely to frighten children than opera glasses? (21, 22) Is it not because such an object is perceived as "unfriendly" and therefore dangerous?

HOW OUR PERCEPTIONS AGREE

It appears almost miraculous that our perceptions should agree at all. We have seen that certain individual factors in personality, sex, age, habits, interests, and the needs that give rise to them all may affect how we perceive the situation in which we find ourselves from moment to moment.

Since on all these factors we differ so much from each other, how does it happen that we can still live in a common world, understand each other, and work with each other without chaos?

Common actions. For one thing, our actions overlap. You are waiting for the streetcar, so am I and a dozen others. To this *extent* we have the same situation and the same goal, and to this extent the perceptual field will be quite similar for all of us. To one person the streetcar may look ominous because it is taking him to the dentist; to another it has a jaunty look because it is taking him to a gay party; to a third it is a dreary thing because it is taking him to a lonely room for a lonely evening. Yet all will attend to the pattern of an object called a streetcar riding on rails toward a place called a car stop. When it arrives, all will recognize this pattern, and if we test our naming of it we shall be unanimous in that this is a streetcar. We may not agree, however, that it is a jaunty streetcar, a dreary streetcar, or an ominous one because our situations overlap only in certain areas and not completely. The shaded area in Fig. 26 is the situation the three have in common. A, B, and C indicate areas common to two circles, while P, O, and J are peculiar to one circle.

Common use. Common action means to some extent common use of objects, and we would expect, therefore, that objects used repeatedly in about the same way will tend to have a pattern that all will perceive in the same way.

A chair, for example, is likely to be perceived as a chair by nearly everyone, even though the images cast on the retinas of the eyes of the

various observers might be quite different. Since in our lives chairs are things to sit on, these differences do not, as a rule, affect how we perceive them. The pattern we perceive is the one the chair really has in relation to its use and not in its relation to our sense images of it.

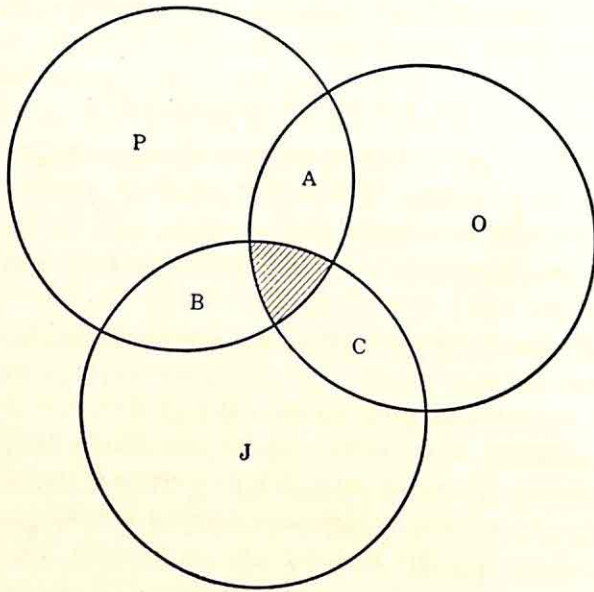


FIGURE 26

In other words, chairs usually have seats, backs, and legs. They are made with backs that have a certain pattern, rectangular, circular, oval, and so on. The legs support the seat. Thus, although there are hundreds of different forms of chairs with a thousand structural deviations, we perceive them as *chairs* even though we may note the individual peculiarities—all of them or some of them—especially if these become relevant to some action or some interest. If the chair looks too fragile, I may hesitate to sit on it, and if it looks too expensive, I may not be able to buy it. An antique collector would notice other details, and the lady who might have to dust it will notice still others.

Common language. Another source of uniformity in our perception is the common language used by members of a culture group. Language standardizes what we perceive by directing attention to certain perceptual fields or objects within the field. So much so that for very young chil-

dren the names of things seem to be part of the things themselves (23, 24, 26).

We have a device for testing whether we are thinking about the same thing, that is, whether we are "meaning" the same thing. We utter its name. If the names we use are the same, then presumably we are thinking of the thing the name signifies. When we teach a young child the names of the "dog," "horse," and "kitty," we expect and hope that thereafter the utterance of these names will reinstate in his consciousness images or thoughts of the objects so named. If he persists in "misnaming" things, there is no way of proving him logically wrong, but practically he is doomed to remain incommunicado with all except those whom he can persuade to name the world as he does.

When we encounter a person with whom we do not share a common language, our first task is to agree on some names of things—a not impossible but rather awkward enterprise if not helped along by a person who knows both languages.

What a group names by a separate name it apparently regards as of practical importance to the life of the community, so that to learn the language of the group is at the same time to learn to perceive the world as the group does and to value the things the group values (25).

Just learning the language of the group, as we inevitably do, socializes us because it makes us like-minded with the members of that group. This is to say that we shall in most matters think along the lines dictated by the language.

General and specialized vocabularies. Within a social order there are usually subgroups, and these may use vocabularies that are not generally familiar. Every occupation has its own set of terms that are probably strange to anyone outside of that occupation. In a society where interests tend to be diverse and occupational groups have their own technical vocabularies, there comes a time when individuals from various groups find difficulty in communicating about anything except the weather.

Every person, therefore, learns a *general* vocabulary that enables him to communicate with most of the members of the group, and a specialized vocabulary or vocabularies depending on the subgroups in which he attains membership.

One kind of specialized vocabulary deserves added mention. It is the set of symbols used to define classes or castes within a society. Although dress, houses, and other means are used to differentiate one social class

from another, language is one of the most important. A taxi driver who speaks like a college professor is regarded with interest and with some misgivings by his confreres, and a college graduate who uses the jargon of the street corner also is regarded with some misgivings.

What is the difference between these two uses of language? Does the uneducated speaker fail to communicate or does he do it less well than his more completely educated fellow citizen? When a youngster announces, "I ain't gonna go home," is he more likely to be misunderstood than his fellow recalcitrant who says, "I will not go home"?

It is true that the specialized vocabularies of the sciences and trades do serve a useful purpose: they supply precision to discourse. For example, if we did not have the word "cam," what would the mechanics and machinists do to communicate about this peculiar but essential article? Technical terms are shorthand symbols that save a lot of talking. He who would serve any of the professions or trades must learn its shorthand or remain an outcast.

But the differences in the speech of the "upper" classes and the less elevated ones can hardly be said to serve the purpose of precision or learning, or even ease of communication. There is little evidence that members of less educated classes misunderstand each other more or more often than do members of other classes.

It just so happens that members of one class pay attention to words and learn to speak with a certain vocabulary and intonation. This manner of speaking becomes a sign of class membership, so it becomes important to speak in a certain way if membership in the group is desired.

Common expectations. Muzafer Sherif (27) noted the influence of the group on the way an individual learns to perceive. This is particularly true in perceiving a social situation. For example, do old-time Southerners perceive the Negro as do their grandchildren? Do Negroes perceive whites as whites perceive each other? It also operates on the way we perceive works of art in which our judgment is being molded by the judgments of others and the expectations of others.

Note, however, that in these situations the perceptual field is not strongly patterned by common use or even by common use of language. When we judge the economic role of the Negro or the machine operator in our culture by comparing his earnings statistically with those of other groups, it becomes more difficult to perceive this situation individually or to see it as others might want us to see it.

Presumably, if a group around me persisted in saying that the object before me had only three instead of the four legs I perceive, I would in time doubt my own senses and I might begin to perceive it differently, but it would take some doing. Whereas, if I thought a piece of poetry was pretty good and a dozen experts whom I respect said it was pretty bad, there is little doubt that my perception of it would change in their direction, and this in rather short order.

Therefore, just as common use of objects standardizes perceptual patterns that play a prominent part in that use, so when we are perceiving the social scene the need for common attitudes will force us to standardize and stereotype the ways in which we perceive it. If we are going to get the approval of the crowd we work with or play with we had better see things their way, and most of us sooner or later do get to see things that way. In time we come to "see" that modern kitchens, powerful automobiles, plentiful and varied clothes, certain types of entertainment are worth having and that people who do not have them are pitiful, while those who do not want them are "queer."

SUMMARY

We perceive the stimulus as a pattern or configuration of objects brought together and organized into what is called a "perceptual field." Questions arise as to what material is selected and how it is organized into this field, for obviously not all the sense energies received by our bodies are perceived and attended to in the same way.

We noted that this patterning is affected by two sets of factors. One set we called objective, and were located pretty much in the perceptual field itself. The other class of factors were individual ones, and here we tried to explore the effects of habits, interests, general personality style, age, and sex. In general, the more strongly structured the objective field, the less individual factors operate, and vice versa. Finally we discussed the factors that give us agreement among our perceptions despite the individual differences. Among these we found common action, common use of objects and language, and the standardizing effect of common expectations of the culture in which we are brought up.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: Effect of language on perception

Assignment: Read experiment by L. Carmichael, H. P. Hogan, and A. A. Walters in Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart and Co., 1949), pp. 319-22, or in E. L. Hartley, H. G. Birch, and R. E. Hartley, *Outside Readings in Psychology* (New York: Thomas Y. Crowell Co., 1950), pp. 173-83.

Questions for Class Discussion

1. Were the words given to the experimental subjects before or after they were shown the stimulus figures?
2. Did knowing words really make a difference in the figures that were reproduced?
3. Were all the words equally effective in influencing the figure reproduced?
4. Did the subjects in reproducing the figure remember what they "saw" or the word?
5. Do you find any evidence in this experiment for the Gestalt qualities described in this chapter of the text? If so, which qualities seem to have operated?

PROJECT II

Topic: To study perceptual constancy

Assignment: Read Valentine and Wickens, *Experimental Foundations of General Psychology*, pp. 303-7.

Questions for Class Discussion

1. What was Katz trying to prove or find out?
2. Why did the experiment need two parts?
3. How would the Gestalt psychologist explain the results of this experiment?
4. Can you list some other areas of experience in which we also display a perceptual constancy?

PROJECT III

Topic: To investigate various aspects of the study of perception

Assignment: Read Wayne Dennis, *Readings in General Psychology* (New York: Prentice-Hall, 1949), Chap. 3.

Questions for Class Discussion

1. How does von Helmholtz explain the moon illusion?
2. What point is Köhler trying to make in Article 6?
3. What does Münsterberg conclude about the cause of perceived movement?
4. How does Article 4 on the span of visual perception illustrate the careful introspectionist methods of the Structuralist school discussed in Chapter 4 of the text?

RECOMMENDED READINGS

- ALLPORT, FLOYD H. *Theories of Perception and the Concept of Structure*. New York: John Wiley and Sons, 1955, Chap. 5.
- BLAKE, R. R., RAMSEY, G. V., et al. *Perception: An Approach to Personality*. New York: Ronald Press Co., 1951.
- DENNIS, WAYNE. *Readings in General Psychology*. New York: Prentice-Hall, 1949, Chap. 3.
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- GARRETT, HENRY E. *Great Experiments in Psychology*. 3rd ed. New York: Appleton-Century-Crofts, 1951, Chap. 4.
- GIBSON, JAMES J. *The Perception of the Visual World*. Boston: Houghton Mifflin Co., 1950.
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- KATZ, DAVID. *Gestalt Psychology*. Trans. by Robert Tyson. New York: Ronald Press Co., 1950, Chaps. 6, 7, 8.
- KOFFKA, KURT. *The Growth of the Mind*. 2nd ed. New York: Harcourt, Brace and Co., 1925, Chap. 4.
- WHEELER, R. H., and PERKINS, F. T. *Principles of Mental Development*. New York: Thomas Y. Crowell Co., 1932, Chap. 8, pp. 139-57.

10

Conditions of Learning

MOTIVATION

Is motivation necessary for learning?

SOME OTHER FACTORS

What is the relation between learning and practice?

What is the relation of social atmosphere to learning?

What kind of tasks are best learned?

Does one learning transfer to other learnings?

What is the relation between learning and forgetting?

INTELLIGENCE

Are there types of intelligence?

How are intelligence tests made?

What precautions should we exercise in interpreting IQ?

What types of test have we?

Is intelligence inherited or acquired?

Is there a general intelligence?

How is intelligence distributed?

What is the relation of IQ to vocation?

PREVIOUS chapters have stressed the notion that human behavior develops from simple beginnings into the bewildering complexities of adult civilized life. In Chapter 7 it was shown how our simple needs become complex motives, and in Chapter 14 it will become clear how the expectations of others complicate further the design to which a man's behavior and personality are shaped.

If we now ask by what means or processes this development takes place, we get two answers: maturation and learning. Maturation makes us think of a process of ripening, of completion, in brief, of a living organism that reaches a peak in its development and thereafter goes downhill to old age and death.

Maturation is a growth process that seems to be directed by a master design which each individual receives in his genes at birth. A bad environment will warp the maturation process, hinder it, or even halt it, but an acorn will mature into some kind of oak; short chunky people will remain short and chunky, however conscientiously they diet. Most of our physical characteristics are developed through this maturational process, and in so far as our behavior and personality are controlled by these physical processes, they, too, are under the guidance of hereditary controls.

Are growth and learning the same?

Are all changes in human behavior due to maturation, or are some of these changes brought about by the interaction of one piece of experience with another, namely, *learning*? Is learning also a kind of growth? If so, how does it differ from the kind of growth we call maturation?

Learning does seem to show some of the features characteristic of all growth, namely, *differentiation* and *integration* (see Chap. 5). When we learn to write, we gradually differentiate large arm movements into small and precise finger movements. Later we combine these new little movements into a unified pattern, that is, a new integration. But, unlike maturation, learning is not directed by hereditary patterns, but rather by goals and by demands made upon the learner. To be sure, the equipment he uses to *learn with* grew through maturation, but not the learning itself.

Further, growth, even when we speak of an illness "growing" worse, means that an increase has taken place on some dimension. Learning, on the other hand, carries no such connotation. Learnings may be morally good or bad; they may be well or poorly established; they may be complete or incomplete.

Some educational psychologists, however, have made growth, development, and learning synonymous. They have been so impressed with the importance of "readiness" for good learning that they view education as the process of getting the pupil ready to learn. This makes readiness to learn and learning equivalent, but having brought the horse to water, he

still must be persuaded to drink. Are there not untold millions of people who are ready to learn to read and write but will never do so?

What kind of questions can we ask about learning?

1. What kind of changes does learning bring about? As one text (1) puts it, learning brings about three kinds of change: cognitive, motivational, and behavioral. (a) Learning changes the way we perceive and understand the world. Before learning, the slight changes in the wind and water mean nothing; after learning, they mean important changes in the weather. (b) Learning changes our needs, as we have already noted. (c) Learning changes our outward behavior.

2. What takes place in us when we learn? What can we *observe* taking place as our experience changes from A to B? Strangely enough, we do not have much with which to answer this question. The passage from ignorance to knowledge, awkwardness to proficiency, this way of seeing to that, may be rapid or slow, but about all we can say is that one stage or condition comes after another; what lies in between seems to elude our observation.

Just what can you observe happening between your first bewildered impressions of a strange city and the growing familiarity with its streets? What happens—that you can observe—between the moment when you could not see the sense of a geometry theorem and the moment you could; between the moment when you were still floundering in the water trying to stay afloat and the moment when you became really water-borne? Because these questions are so difficult to answer, we get three other questions in the psychology of learning.

3. What conditions promote or hinder learning? This kind of question naturally concerns parents, teachers, and others who try to influence people. The answers are dealt with exhaustively by textbooks on educational psychology. There will be found chapters on how to motivate the learner, how to present the material, how to encourage practice, how to secure the right classroom atmosphere, and how to maintain the mental and physical health of the learner so that he will learn efficiently.

Because psychologists are pretty well agreed that the whole organism is engaged in all learning, anything is a condition of learning if the learner, in any way, is or could be affected by it. Accordingly, among the conditions for good school learning are included: the mental health

of the parents and the home in general; the values and attitudes of the community; the doings and misdoings of the mass media, such as the movies, comic books, radio, and television; the demeanor of the teacher as well as her own mental health, not to mention instructional conditions, such as books and lessons.

4. How is learning to be explained? This is the question that interests the theorist rather than the teacher or the advertiser, although the teacher and advertiser sooner or later will be influenced by the theory. Please recall that when we asked what actually took place in learning we were hard put to find an answer in *direct observation*. A theory makes up for this difficulty by *constructing* a scheme which tells us what *must* have taken place in order to account for the fact that learning did take place. Hence many of the theories of learning sound like "descriptions," even though they are really explanations.

5. Is learning of one kind or are there many kinds? All science, we are told, seeks the *one* theory that will explain everything. To some extent modern physics has accomplished this because there is no physical event that cannot be expressed in the language of atoms, electrons, protons, electrical fields, and so on. But complete unity is yet to be achieved. Within psychology we also would like one theory that would explain all types of experience and all types of learning. But for the present, no one of the current theories does equally well with the learnings that produce changes in perception, motivation, and behavior.

The remainder of this chapter will discuss the conditions of learning. The other questions will be taken up in Chapter 11.

What are the empirical criteria of learning?

Certain changes in a behavior pattern can be regarded as signs of learning.

1. The reduction of errors. If a boy plays a piano piece with twenty errors on the second try and with three errors on the tenth try, we say that he has learned.

2. Reduction of effort. The expert athlete makes difficult feats look easy. The dub in any field is clumsy and effortful.

3. Increase in speed, which may well be the result of the two factors already mentioned, for if errors and effort are reduced, speed may well increase.

4. Reliability of response or the increased tendency of the learner to respond with the "learned" response whenever the appropriate stimulus appears. In other words, a habit is on the way to becoming well established.

All these signs have the great virtue of being measurable. Errors can be counted, so can minutes and seconds. Feelings of effort cannot, but energy expenditure can, if we are ingenious and patient enough to devise the appropriate instruments (2).

Good experimentation in learning also requires a simple situation. Learning must be clearly isolated from other behavior, and the causes of the learning must be separated from the other factors that so often intrude upon the final results.

Accordingly, the literature is rich in studies of animals learning relatively simple tasks, permitting control and measurement of variables.

MOTIVATION

Is motivation necessary for learning?

It is an old story that all organisms learn better if some drive keeps them striving toward a goal, but rats that were not rewarded with food while running through a maze nonetheless learned something about the maze, as proved by the sudden improvement in their performance when the reward was introduced (3).

Does this mean that the rats learned without motivation? Probably not, because, as Woodworth (4) has so well pointed out, to *perceive clearly* is always an operating motive whatever other incentives are or are not present.

Perceptual learning seems less dependent on strong motivation than are some of the other kinds. Thus, if I just "see" the name of a book, I may remember it. For all practical purposes I can be said to have learned it, yet perhaps my only motive, inasmuch as it had come into my field of vision, was to perceive the name clearly.

Reward and punishment. A reward is satisfaction that accrues to the learner for making a given response, for example, running the maze, or spelling twenty words correctly. Punishment is the painful consequent of making some response. Experiment has confirmed centuries of common sense that both reward and punishment speed up learning, with reward usually more efficacious than punishment.

Experimentation by Peterson (5) and Tolman (6) seems to indicate that punishing the correct responses may have better learning results than rewarding them.

Further, the work of Estes (7) shows that punishment seems to prevent the organism from making a particular response, but does not prevent the organism from learning that response.

These apparently incompatible results lead to the conjecture that neither reward nor punishment in itself affects learning. Rather it is their effect in drawing and fixing the attention of the learner to certain of his acts that makes the difference.

Law of effect. What is it that the learner is supposed to notice and why? Clearly those results of his activity which further his goals or relieve his tensions. Thorndike expressed this in his original law of effect, which stated that a response followed by a satisfying state of affairs will tend to be repeated while one followed by an annoying state of affairs will tend to drop out of the learner's repertoire.

But how broadly shall we conceive the learner's satisfaction or annoyance? That depends, does it not, on how broadly we shall conceive the learner's goal? Is the rat's goal in the maze to make a series of right turns, or to get food, or to relieve its hunger? Does a pupil want to get the approval of his teacher for doing ten arithmetic problems correctly, or does he want to get the approval of his parents for doing well in school for the whole year, or is he working to become proficient in arithmetic?

Thus it is possible that punishment of a response that leads to the *final* goal will nevertheless help the learning of that response, while punishment of the wrong response may help to eliminate it *if* it is perceived as interfering with reaching the ultimate goal.

In formal schooling much depends on how well the learner's goal and the teacher's agree. If the pupil's goal is to please the teacher but teacher's is to have him learn history dates, reward and punishment will have to be used to get the pupil to adopt the goal of the teacher. Otherwise the pupil can achieve his own goal by copying the work of other pupils or pretending he is interested in history, and so on.

Punishments and rewards, therefore, promote or hinder learnings by being used as signals to the learner to mark out for him more plainly (a) what the ultimately desired outcome of his activity is to be, and (b) the various steps leading to it. It is almost like drawing red circles around words that we wish to set off from other materials: we are making sure that is a figure instead of background.

Interest. It is clear that when (a) is already known to the learner, he can concentrate on (b), and that he will do so in proportion as (a) can drive out other goals from the focus of attention.

When this is the case we say the learner is *interested* in a certain outcome. Inwardly he finds it easy to concentrate on this outcome, that is, to keep it in focus or to attend to it. He finds satisfaction in carrying on the activity. For example, if a boy is interested in football, he already has adopted its goals, so that they resist the intrusion of rival candidates for his attention. To have an *interest*—for example, in football—is to have a cluster of experience that arouses the feelings of “being interested.”¹

This satisfying feeling we call an *intrinsic* reward because it comes from the task itself rather than from anything outside of it. If a boy enjoys getting answers to arithmetic problems, the reward is in his achievement and not in such *extrinsic* rewards as getting a grade or a star or a pat on the head from his teacher.

It is no wonder, then, that teachers are forever on the lookout for pupils’ interests wherewith to “motivate” them. They would like to have spelling ride in on the coattails of a boy’s interest in aviation or space ships. We must note, however, that to make spelling interesting is different from utilizing the interest in aviation to teach spelling.

The interests of pupils are symptoms or signals that they have organized their needs and goals in terms of certain activities, for example, collecting stamps, athletics, members of the opposite sex, travel, adventure. The teacher is thereby notified that other goals will have some difficulty in gaining admission unless introduced by a goal already a member in good standing.

Competition. If there is a strong desire to excel, then it will be satisfying to learn in order to outperform one’s competitors. In our culture this is a strong motive and takes different forms for various groups in the culture. Some want to excel in athletics, others in studies, others in wealth accumulation, others in sexual attractiveness.

There has been a good deal of experimentation on the relative effects of competition and cooperation on learning and among various types of competition. The results tend to prove how complex this question is.

¹ This description of “interest” is phenomenological, that is, it tries to say what being interested feels like. But how one cluster of experience organizes itself to resist intruders we still do not know. Especially mystifying is the matter of understanding what goes on in the brain and nervous system when we are having the experience we call being interested.

Among the factors that have been considered are: the age of the competitors (8), the brightness of the pupil, the nature of the group (9, 10), and the degree to which the pupil identifies with the group (11).

Theoretically, it is important to continue the search for the effect of each of these many variables upon learning. Practically, it becomes virtually impossible to arrange matters so that factors other than competition or cooperation do not have a part in the experimental results.

Once a learner is drawn into competition his learning will become more efficient because his energy will be channeled and intensified. Whether he will compete depends on how he perceives the learning situation. Does success promise prestige, status, pleasure? Does failure promise less of status, prestige, and so on? What are the chances of succeeding?

These three questions are closely related. Sometimes the learner will not compete because he is indifferent to the consequences of either success or failure. At other times the learner may withdraw from competition because, although he wants success, his lack of skill makes failure and its consequences too real for comfort.

Knowledge of results. Far less doubtful is the effect on learning of the knowledge of progress by the pupil (12). In view of what has been said about the law of effect, this is hardly surprising. Knowledge of results is the most direct signal apprising the learner as to whether he is reaching his goal or not. Of course, if he does not understand the signal, receiving it will mean little. Thus it is not suggested that rats be shown progress charts of their travels through a maze, but when the signals (grades, marks, and so on) are understood, they help matters along enormously. Hence school people expend much energy and ingenuity in devising schemes whereby the pupil can keep track of his own progress. This is easier in tasks that lend themselves to objective measurement, for example, spelling, arithmetic, than in those that do not, for example, ability to write poetry.

Knowledge of results tells the learner to continue as before or to change. In either case there is an increase of confidence and a decrease of hesitation and indecision. Beginners in any learning task are particularly dependent on knowledge of results because they have not succeeded often enough to know how a successful performance should feel.

SOME OTHER FACTORS

What is the relation between learning and practice?

If practice does not literally make a performance perfect, it is at least supposed to improve it greatly. Much of our learning, if not all of it, contains an element of skill. Or, to put it in another way, a good deal of our learning involves combining a number of acts into some kind of sequence, for example, playing the piano, using a typewriter, making a speech, or solving arithmetic problems.

Practice or repetition is especially prominent and valuable in this type of learning. In skill learnings he who hesitates is lost. The trick, therefore, is to eliminate all tendencies to make any but the correct response. Repetition gives the learner the opportunity to achieve this, especially when he is aware of what it is he wants to get rid of and what he wants to achieve.

Repetition without such awareness is probably of little use in learning. Take the case of misspelling words. People misspell words that they have seen spelled correctly thousands of times. Enlightened teachers have learned not to place too much value on mere repetition. On the contrary, they try to make each repetition a conscious effort to achieve a specific result that the learner himself can recognize when he achieves it.²

There is a good deal of experimental literature on how practice should be spaced so as to provide the optimum conditions for learning. In general, frequent short periods are superior to longer periods more widely spaced, but, once more, so many variables have to be taken into account that the findings are of limited value. For example, if the learning goal is to get the drift of a novel, it may be more economical to read it through in one sitting. It might, however, not be economical to memorize poetry in this fashion.

Similarly, the question of whether to study wholes or parts has been investigated to no great practical purpose. The best size for a unit of study is the largest the learner can comprehend. This may be a chapter, if the material is familiar; it may be a paragraph, if the material is new and difficult. For some pupils a sentence may be all that can be handled conveniently as a unit. Much depends, too, on what we are trying to

² It is not beyond the realm of possibility that personality reasons may lie at the root of faulty spelling. However, there has yet been no real evidence to prove or disprove this contention.

accomplish. If rote memory is the outcome desired, the units may be of one size; if insight into some pattern is wanted, then another scheme may be advisable.

What is the relation of social atmosphere to learning?

An important condition of learning is the social setting in which it takes place. In recent years this has received increasing attention from all types of psychology, but particularly from educational psychology.

If motivation is as important in learning as everyone seems to think, then it is important to note how the character of groups affect the motivation of its members (see Chap. 14). For example: An adolescent girl may have the best intentions in the world of learning a chapter of ancient history, but in the presence of twenty young men in a study hall the good intentions avail her nothing—in the way of history.

In every grouping there develops a pattern of dominance and submission. There are leaders and followers, friends, chums, acquaintances, and enemies. All these affect every member's behavior so that the task to be learned takes on a different color for each of them. The now classical experiment in this field was performed by Lewin, Lippitt, and White (13, 14). They compared the effects of three types of social climate induced by three types of leadership: laissez-faire, authoritarian, and democratic. The democratic type clearly won the contest, especially in the degree to which the task (maskmaking) enlisted the interest of the group, the degree to which the members helped each other, liked each other, and could discipline themselves (see Chap. 14).

It is, of course, a pity that governments of authoritarian countries do not take the results of these experiments to heart, but they are not easy to put into practice. Democratic groupings require that each member be of about equal power with the others, so that threats to his status are kept at a minimum. This is the great learning-promoting-power of the democratic family, state, and classroom. When we are relieved of the fears of inadequacy and insecurity we can concentrate on achievement either for ourselves or for the group. Unfortunately these conditions are hard to fulfill in groupings where power is not fairly evenly distributed, and in actual situations they rarely are.

One more note is needed to appreciate these experiments on social climate. The task was maskmaking and there was opportunity for the mem-

bers to cooperate in their production and to learn from one another as well as from the leader. When individual mastery of a skill or a process is the aim of learning, the values of the social climate become less direct and perhaps not so strategically important.

The school is naturally interested in this phase of education. (a) It is related to discipline. These experiments show that discipline is largely a matter of the kind of leadership the teacher exercises and the kind of social climate that is thereby established. (b) It realizes that the skills of living in groups may have to be taught in the formal school. (c) It is interested in whether this is the clue to all method in teaching, that is, whether establishing a democratic social climate is not the way par excellence of teaching anything.

What kind of tasks are best learned?

Are there any features of the learning task itself that affect the ease of learning it?

The general answer is "meaningfulness." This means that the task makes sense, which, in turn, means that it is part of a larger whole to which it is intelligibly connected, and that its own parts are likewise intelligibly linked.

A task is said to be meaningful when it is clearly related to a goal. Thus, learning algebra is clearly related to the goal of becoming a mechanical engineer, and learning the Morse code to becoming a ship's wireless operator. In this sense, meaningfulness means the same as being motivated.

In another sense, it means that the parts of the task are expected to make sense with each other. This happens when one part gives a clue as to what belongs with it or follows it. Thus when we are reading a sentence such as: The sun was shining brilliantly in the . . . we naturally supply the word "sky," since that is where suns usually shine. But why a specific set of dots or dashes stands for a certain English letter in the Morse code neither the word nor the symbols indicate. The connection, we say, is arbitrary and has to be learned more or less mechanically.

This internal connectedness is furnished in various ways:

1. All the characteristics of patterns that we enumerated in Chapter 9: closure, proximity, and so on.
2. Logical relations, such as implication, contrariety, contradiction,

equivalence, subimplication, subcontrariety, and others.³ Hence, if we know that: All men are rational bipeds, we at the same time know that it is false that some men are not rational bipeds. And if it is true that: All men are rational bipeds, then we also know that some men are—if there are such things as men—rational bipeds.

3. Existential relations, such as natural laws. If we know that clouds mean rain, then the clouds become natural signs of rain. Thus oxidation, hydrolization, the laws of motion are unifying principles that permit us to travel mentally from one sentence to another, from one event to another.

From all of which it follows that the more pattern there is in the material to be learned the easier it will be to learn *if the pattern is discerned by the learner*. We have to add this last proviso because some patterns are more complex than others and some are beyond the maturity or comprehension of the learner.

What the applications of this principle should be are clear enough, but only a limited success has been achieved in making them. The reason for this is that many school people still reduce all learning tasks to skills of memorization, so that the unifying value of principles and generalizations is lost. On the other hand, much of the work of the school involves patterns that are too complicated or too abstract for the duller pupils.

This brings us to another condition of learning that has to be taken up in a separate section. It is the condition of intelligence itself, which, hard though it may be to define, is the major factor in determining the level on which learning takes place.

Does one learning transfer to other learnings?

In one sense all learning is *transfer*, that is, one piece of experience is used in more than one situation. Whoever learns to walk or talk does not do so in order to walk on sidewalks only or to talk into telephones and nowhere else.

In a narrower sense, however, transfer refers to the effect of one piece of learning on a specific task that is yet to be learned. Thus we ask: To what extent will learning algebra in high school help in the learning of calculus in college? Or: To what extent will the passing of a college examination in economics change the buying habits of this student in adult life?

³ The precise logical meanings of these terms can be studied in any logic textbook.

In this connection it becomes pertinent to ask whether some school subjects, like algebra and history, transfer better than other subjects. Do certain subjects make people more intelligent, more persevering, more honest, more civic-minded than others? For a long time it was thought that subjects that forced the learner to exercise certain faculties (for example, reasoning, memorizing, imagining, reading) would increase his thinking power, memorizing ability, and so on, so that the faculties would function more efficiently in any situation calling for these powers.

This has been known as the doctrine of *formal discipline*: formal, because the form of the learning was emphasized rather than its particular content. It was the reasoning in mathematics that was to transfer rather than the particular numbers used or the particular problems solved. What the advocates of formal discipline had in mind is well stated by the following passage contained in the report of the Committee of Ten of the National Education Association (15) in 1892:

As studies in language and in the Natural Sciences are best adapted to cultivate habits of observation; as mathematics are traditional training of reasoning faculties; so history and its allied branches are better adapted than any other studies to promote the invaluable mental power which we call judgment.

A series of studies in the early part of this century cast grave doubt on this whole theory. William James could not convince himself that learning one poem by an author helped him appreciably in learning another poem by the same author. Thorndike concluded from his studies that no one subject in the high school curriculum "improved the mind" (as measured by scores on intelligence tests) much more than did any other subject (16, 17, 18, 19).

Another wave of studies undercut the traditional educational virtues of Latin. Although some transfer was noted in these studies, it was too small to warrant teaching Latin, or anything else for that matter, simply for its transfer value. In other words, while Latin does help us acquire English vocabulary, it would be more economical to improve English vocabulary by studying it directly rather than achieving it through Latin.

Accordingly, the view that all learnings were specific captured the field so that children in dairying regions were taught only dairying arithmetic and, because adults read more magazines than books, children in

school were "emancipated" from the classics and let loose among the magazines.

Amid this general cynicism about transfer, Judd (20) and more recently Hendrickson (21) demonstrated that understanding the principle of refraction did help a group of boys to hit a target that was placed at varying distances underwater, while comparable boys without this knowledge took longer to adjust to these changes.

What can safely be said about transfer as a result of the wealth of experimentation and discussion? Simply that for anyone (X) to apply a learning (L) to a situation (S), X has to apprehend S as involving L or as exemplifying L. In other words, educators are generally agreed that transfer in appreciable amounts is not automatic.

Thorndike argued that transfer took place to the extent that the elements of task A and task B were the same (22). This was called the theory of *identical elements*. Bagley found that neatness developed in one situation did not transfer to another, even though many elements in the two situations were alike. But this is not surprising if we remember that learning is within and of a situation. Change the situation and it may be difficult to recognize even old and familiar elements within it.

Among the processes that can transfer, if we take the trouble to encourage it, are: (a) Relationships that can be perceived directly, such as triangularity, a melodic line, motion. (b) Methods of work (23), especially when we become aware of how and why a method or technique is successful. (c) Generalizations (24). (d) Ideals of behavior (25). (e) According to Allport (26) and others (27), attitudes, which affect whole classes of behavior as well as specific acts.

Transfer can also be negative, that is, a previous learning may hinder a subsequent one. This happens when the two learnings are enough alike to seem transferable to each other, but are different enough to make the similarity deceptive. Thus he who writes "receive," "deceive," and "believe" may be led astray by the first two words. Old habits may assert themselves when new ones are not yet well established, so that a Frenchman will insert French spellings and constructions into his halting English. Perhaps Italian, because of its greater resemblance to French, may give him even more trouble in this regard.

One further word might be said about transfer. Perhaps what is transferred is not what we expect will be transferred and perhaps not what the experimenters were looking for in their studies of transfer. Suppose, for

example, that Latin, when studied for four or five years, changes the type of imagery we habitually use in our reading of English. The imagery of one who knows Latin, upon reading the words "concrete," "transport," "abstract," may be quite different from the imagery of the person who is innocent of Latin. The images conjured up by "transport" in the mind of the Latin student, for example, might be carrying-across and "abstract" might elicit drawing-out-from. No such images need occur in the mind of the student without the benefit of Latin. If this should be the case, there would be a real and quite important transfer which the experiments have neither confirmed nor denied. Similarly, until we know just what incidental learnings accrue from the subjects of instruction, it is the part of wisdom to be cautious about arguments for or against the transfer of learning.

What is the relation between learning and forgetting?

In one way there is really no need to discuss forgetting apart from the general topic of learning because one of the most important tests of learning is the ability or the inability of the subject to retain what he has learned. On the other hand, there is a real difference between learning and forgetting. I once could recite stanza after stanza from *Evangeline*, so that I must have learned it. Now I cannot recite even one stanza. Does this mean that I never learned it?

As was pointed out in Chapter 4, Ebbinghaus was a pioneer in the experimental study of memory. He and subsequent investigators (28) found that the greatest amount of forgetting took place shortly after the learning was completed, and that proportionately much smaller amounts are forgotten at subsequent intervals. It has also been found that the amount retained depends to some extent on the way retention is measured. This is clearly shown in Table 1 and Fig. 27.

Meaningful materials such as poetry and prose are not forgotten in such large amounts and, where the person learns with understanding, retention is even greater (29).

Overlearning refers to practice of a task beyond a certain degree of learning (for example, one perfect repetition or performance). Overlearning does improve retention, but not in direct proportion to the amount of overlearning. For nonsense syllables it was found that by the end of seven

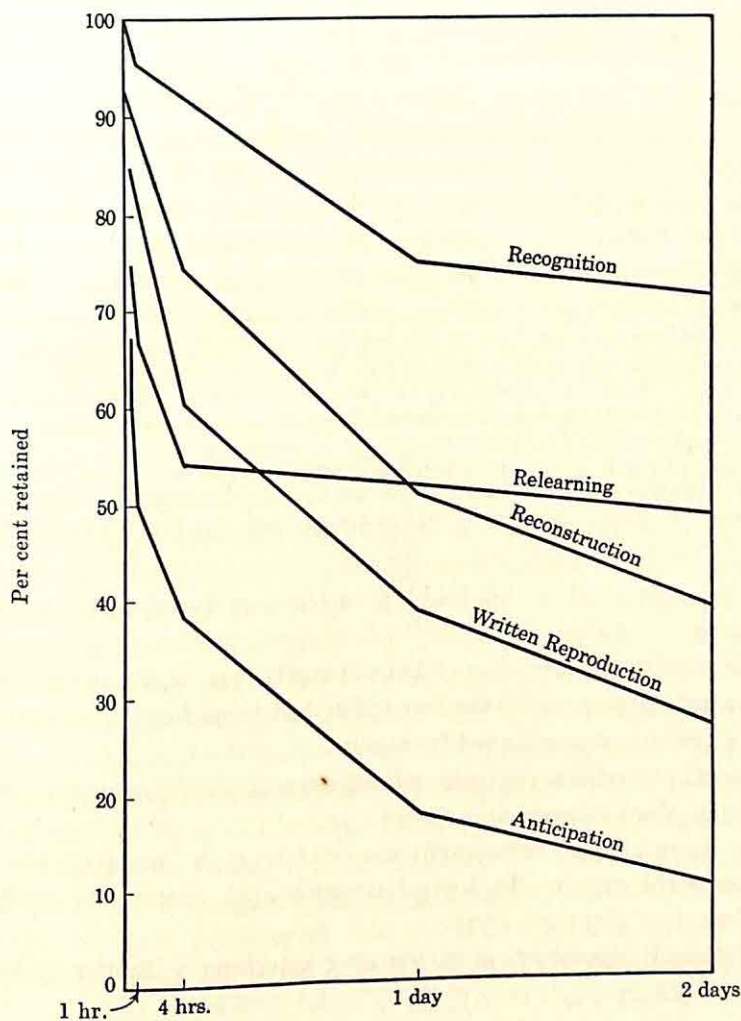


FIGURE 27

CURVES OF RETENTION OF NONSENSE SYLLABLES LEARNED BY DIFFERENT METHODS. [After C. W. Luh, "The conditions of retention," *Psychol. Monogr.*, 31 (1922), 1-87.]

TABLE 1

PERCENTAGES OF MATERIALS RETAINED AFTER INTERVALS OF VARYING LENGTH

| Method | Percentages Retained after | | | | |
|----------------------|----------------------------|--------|---------|-------|--------|
| | 20 mins. | 1 hour | 4 hours | 1 day | 2 days |
| *Anticipation | 68 | 50 | 39 | 18 | 10 |
| Relearning (saving) | 75 | 66 | 55 | 52 | 48 |
| Written reproduction | 88 | 82 | 61 | 39 | 27 |
| Reconstruction | 92 | 90 | 75 | 51 | 39 |
| Recognition | 98 | 95 | 93 | 75 | 72 |

* In the anticipation method, the subject tried to guess what the next syllable would be before it was shown. In relearning, the amount of time needed to restore the learning was measured. In written reproduction, the subject wrote down all the syllables he could recall. The effort to arrange a scrambled series of syllables into their original order was called reconstruction, and the ability to pick out the dozen syllables used in the experiment from a larger list was called recognition.—Taken from Henry E. Garrett, *Great Experiments in Psychology* (3rd ed.; New York: Appleton-Century-Crofts, 1951), p. 113.

days 100 per cent overlearning had little advantage over 50 per cent overlearning (30).

Why do we forget? We do not know exactly, just as we do not know precisely what happens when we learn. The following facts, however, lead us in the direction of a certain hypothesis.

1. Sleep has less destructive effect on the retention of previously learned material than does subsequent activity (31).

2. The more similar subsequent material is to the material that has been learned the greater the loss of retention (of course, the similarity must be less than identity) (32).

3. Emotional experience after learning interferes with the ability to recall that learning (33).

4. When we recall we tend to alter the learned material in certain ways. Bartlett (34) found, for example, that an irregular figure when reproduced tended to be made more regular than it was. Carmichael *et al.* (35) showed that the words to which subjects were exposed while learning certain drawn figures affected the way in which the figures were recalled and reproduced.

All these facts lead to the theory that forgetting is not so much a fading out of the original experience as a scrambling of a jigsaw puzzle. In recall

we try to reinstate the design of the puzzle. If it had no design or only a poorly defined one, or if we did not apprehend it clearly, our retention will be poor, but we do try to give it some design. Subsequent activity will intrude into the poorly structured learning and disrupt it by the process called *retroactive inhibition*.

The Zeigarnik effect (36) which shows that under certain conditions unfinished tasks are remembered more readily than finished ones gives us a possible hint of what happens in retroactive inhibition. Just as getting "set" for an activity is a kind of rehearsal of that activity (37), so an activity may continue in reduced strength after we have turned away from it. It may continue as an attempt to finish itself, round itself off, reach some equilibrium. Some people actually seem to solve problems by going to sleep on them. When this is not possible, the task remains active and near the forefront of consciousness. Hence it is easily recalled.

If an unfinished task, for example, learning French poetry, is immediately followed by trying to learn Italian poetry, we have two tasks with many elements either identical or quite similar trying to complete themselves. If neither structure is strong, the elements may drift from one pattern to another, disrupting both.

According to Freud, much of our forgetting is due to repression. This amounts to a kind of *motivated* forgetting. Since the name, object, or situation carries with it an unpleasant or embarrassing association, we conveniently forget it by forcing it out of consciousness. When John spilled the hot soup on Mary's new dress at the party, he could never later remember her name.

INTELLIGENCE

Intelligence is a power to learn what is needed for the type of achievement that a given culture regards as important.

1. Intelligence is certainly a quality of behavior or of personality, but as such it is not directly observable or measurable. Hence we cannot hope to agree on its precise nature unless we agree on the yardsticks by which it is to be measured. A culture in which a prodigious memory for faces and names is highly prized would make ease of memorizing a prime dimension of intelligence.

2. Although in philosophy it is absolutely necessary to define the nature of intelligence, it is not so necessary in psychology, where we are more

concerned with relating two or more variables so that we can predict from one to the other. Thus if, conceivably, the length of nose were highly correlated with membership in Phi Beta Kappa or membership in learned societies, we would cheerfully regard intelligence as practically equivalent to length of nose.

3. We do have some measures of human behavior that correlate more or less closely with scholastic success and other kinds of success. These are called intelligence tests. Hence by examining carefully what they do measure, we get a basis for inferring that intelligence, at least in our culture, is made up of certain ingredients and operates in certain ways. This is what Thorndike meant when he said, "Intelligence is what the intelligence test measures."

McGeogh (38) lists five principles that describe the way scores on intelligence tests correlate with learning success in various tasks:

Intelligence seems to be required in a higher measure in learning tasks that are (a) more logically patterned, (b) that require dealing with symbols, (c) that are more complex, (d) that ask for insight into new patterns or relations, and (e) that call for the least amount of physical or muscular movement.

Are there types of intelligence?

It is generally agreed that our intelligence tests are quite successful in predicting scholastic success, and to the extent that scholastic success is related to other kinds of success, intelligence tests are predictive of these also.

Nevertheless, outside of the classroom, success becomes more complicated and more differentiated. The man who can afford to sign a check for \$50,000 but cannot write his name to do so is a success in our culture, provided he has not outraged society in accumulating the money.

Thorndike distinguished three types of intelligence: abstract, concrete, and social. The first we have already described. The second is the quality of having a way with things, being able to manipulate them easily; a quality needed by the technician in any field. By social intelligence he means having a way with people, being able to understand them, influence them, work with them, be liked by them, being sensitive to them.

In our culture a high order of any one of these types is a fairly sure promise of success, and a combination of two or more in a high order is equivalent to success in many areas.

Success involves more than intelligence even if we think of it as divided into three types. It takes effort, persistence, a stimulating environment, and as Aristotle pointed out, a modicum of good fortune.

In the light of all these strictures, we shall not place undue faith in the predictive power of any intelligence score. Yet by understanding its limits we can make extraordinarily good use of it. For one thing, although scholastic aptitude is no royal road to success, many vocations, especially on the upper rungs of the vocational ladder, do require theoretical training. Here the intelligence test gives us an early estimate as to the probability that a particular student can achieve that training—even with adequate motivation and stimulation. For example, all the effort and interest in the world will not enable a boy to become a physician in our country if he cannot secure admission to a medical school.

How are intelligence tests made?

Nothing can help us more to achieve a proper perspective about intelligence testing than to understand how these instruments are made and used.

The items. The first job is to select items that are indicative of intelligence. This is the ticklish task, even when we have decided what abilities are important in our culture. The principle one goes on is: Pick tasks that it is least likely the testee has had a chance to practice more than other testees of the same age.

For example, ability to deal with number relations, word relations, space relations, logical relations, speed in perceiving, and ability to memorize rapidly are some of the abilities tested in many intelligence tests. Note that these abilities have all been practiced more or less, but the assumption is that all people have had about the same opportunity to practice them.

When Alfred Binet published his first scale of tests in 1908 he had thirty items emphasizing the ability to take and maintain a definite direction, to make unanticipated changes to reach a desired end, and the ability to assay one's own performances in this regard. The task of putting together the scrambled parts of a figure tests all three of these abilities.

Item selection. Because the test is to be used on all levels of ability, there must be items easy enough for the youngest and dullest to answer and some so difficult that even the geniuses will have trouble with them. But how are we to determine this? Common sense helps, but it is unsafe to rely upon it exclusively. Instead, it is assumed that children's intelligence grows

somewhat after the fashion of their bodies. Thus an item that most six-year-olds can answer but most five-year-olds cannot is harder than an item most five-year-olds can answer, but which stumps most four-year-olds.

Binet, by direct observation, found, for example, that young children enumerate objects in a picture while older ones refer to the action in it. He found that it was more difficult to copy a diamond than a square, and that the power to define nouns develops with age (39).

The sample. To get the test under way, we first have to get a collection of persons representative of the population upon whom the test, when published and sold, will be used. If we are planning to test children from two to sixteen years old we shall have a sample representing these ages. If we intend to use the test in all parts of the country on all types of children, then all these variations in proportion to their frequency in the population at large will have to be in our sample. We have learned in recent years that good representative samples need not be large, but they do have to be carefully selected whether large or small. The important point here is that a test is not *valid* for any person who was not represented in the sample.

Because the test willy-nilly will measure performance of some kind, we shall have to assume that our sample is also representative of the environments of the normal population. Thus children who have been brought up with wolves, kept in attics for the first six years of their lives, or raised in communities that have no radios, schools, industry, or ambition are not likely to be in our sample. Hence our test is not suited to such children except to show how unusual their environment has been.

The norms. Let us suppose that we have tried out our long list of items and, on the basis of what our sample has done, arranged them in order of difficulty. Suppose we have carried out all the refinements that good statistical procedure requires. We now have to tell the people who are to use this test what a testee's performance *means*. We can do so in a number of ways. For example, we can make a table indicating that a certain score on our test corresponds to the 25th percentile. This means that our testee has done as well as the highest scorer in the lowest quarter of our sample. The American Council on Education Psychological Examination has norms of this kind, with the sample being made up of college freshmen who took the examination for admission to college.

Another way of interpreting the scores is to say that they correspond to

a certain *mental age*. This means that we have averaged the scores made by the three-year-olds in our sample, the $3\frac{1}{2}$ -year-olds, four-year-olds, and so on. Whoever thereafter makes a score on the test equal to the average of the four-year-olds in the sample has a mental age of four—regardless of his chronological (calendar) age.⁴

Or there could be grade norms or percentile norms of certain age groups. That is, a 50-year-old testee might make a score that would put him in the top quarter of the 50-year-olds in the sample for a given test.

MA and IQ. Given the mental age and knowing the chronological age, we can then calculate the Intelligence Quotient, or IQ, by the formula $\frac{MA}{CA} \times 100$. Suppose John is twelve years of age. On a test he makes a score equal to that achieved by the average nine-year-old in the sample.

By the formula $IQ = \frac{9}{12} \left(\frac{MA}{CA} \right) \times 100 = 75$, or that roughly for every year of calendar age John has gained 75 per cent of a year in mental age.

The IQ is a ratio between two growth variables. Suggested as early as 1912 by Stern and Kuhlmann, it tells us how fast mental age is increasing (as measured by a test) as compared to how fast calendar age is increasing.

What precautions should we exercise in interpreting IQ?

If we have understood the method of making and standardizing (getting the norms for) an intelligence test, then some of the precautions we should take in thinking about IQ's should be almost self-evident.

1. No two intelligence tests use the same standardizing sample, hence their norms are not directly comparable.

2. All standardized tests are based on what groups of testees in the sample have done. At any given moment in a person's development (especially a young person) he may be a deviate (out of line) with respect to the group. At that moment he tests too high or too low. In other words, retesting him might not give the same result. It is, therefore, risky to rely on any single measurement of intelligence. There ought to be several tests taken at intervals during the school years. It has been suggested that each person has his mental growth cycles. Just as he has his height and

⁴ According to Goodenough (40), Dr. S. E. Chaille in 1887 published a series of tests for infants up to the age of three arranged according to the age at which they were most commonly passed. This would make Dr. Chaille the precursor of Binet in using the notion of mental age.

weight growth cycles. A boy measured at the time when he is growing fast will not have the same IQ as he would have if measured when rate of growth is slowed down. These individual variations are ironed out, naturally, in any group measures.

In Fig. 28 A exceeds B in MA until the age of 12. At 12 their IQ would be the same. At 14 A would exceed B, but at 19 B would exceed A. This does not mean that the tests are faulty, but rather that growth follows an individual pattern.

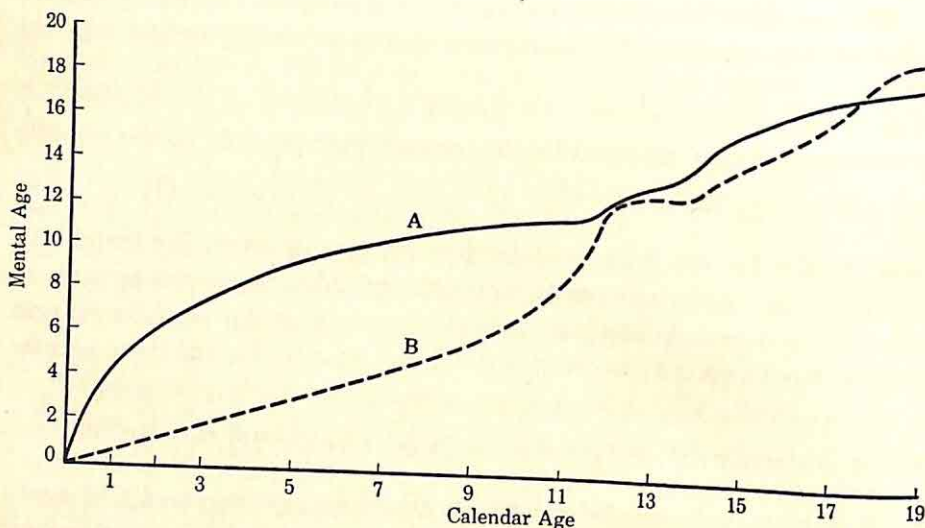


FIGURE 28

A is "brighter" than B until about the age of 12 years. By the age of 17, B is getting "brighter" than A. For examples of actual developmental curves see W. F. Dearborn and W. M. Rothney, *Predicting the Child's Development* (Cambridge: Sci-Art Publishers, 1941).

3. Numbers when used in mental testing are not so precise as they look. When we say that a table is 60 inches long, we can be quite sure that it is not less than $59\frac{7}{8}$ and not more than $60\frac{1}{8}$ inches, if the ruler is marked in eighths. IQ numbers have no such precision. An IQ of 100, if achieved on a group test, can mean any figure from 95 to 105.

4. Mental age is the measure of *present* mental maturity. By itself it tells nothing of future growth. IQ does make a prediction for the future, if we can be sure that the IQ is constant. It shows how fast the testee has developed to date in comparison with other children of his age group.



(above) The road to Briarsville; (below) a group of Briarsville children.

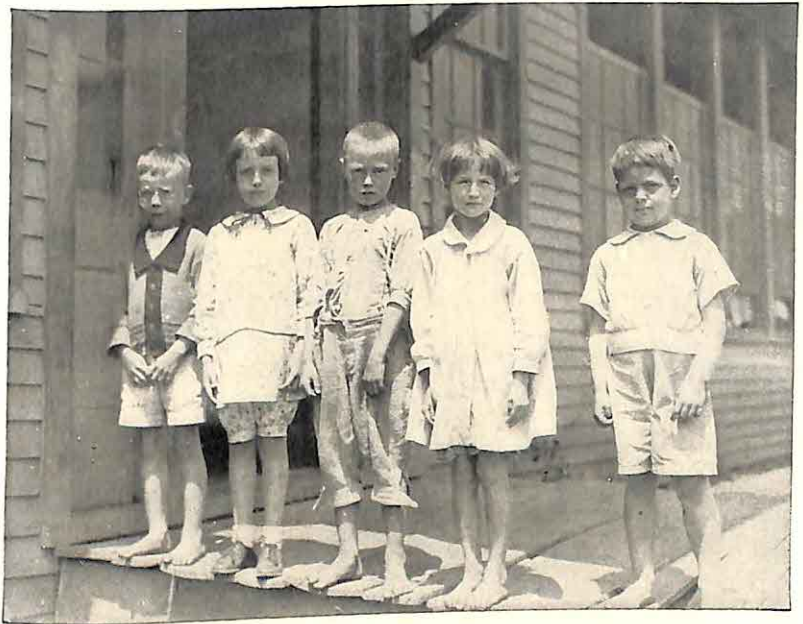


ILLUSTRATION 17

The four pictures on this page and the next show the complex relationships between intelligence and environment. One can easily surmise which of these groups of children would score higher on intelligence tests. (over)



(above) The road to Needles Hollow; (below) a Colvin Hollow group.



So unstimulating is the Colvin Hollow environment that these children cannot grow mentally at the rate regarded as normal for the sample on which the intelligence tests were standardized.

Pictures from Mandel Sherman and T. R. Henry, The Hollow Folk (New York: T. Y. Crowell, 1933), by permission of Dr. Sherman.

5. Intelligence Quotients stop making sense if the person tested has reached the limit of his mental growth, that is, if he cannot increase his score on a test from year to year. When this happens—and it does for most people sooner or later—then the IQ necessarily decreases steadily because the denominator of the fraction $\frac{(MA)}{(CA)}$ increases while the numerator (MA) does not. Numerically, everybody gets more stupid from this point on.

Accordingly, statistical adjustments have to be made in calculating IQ once the testee reaches adolescence, or the whole notion of IQ is abandoned in favor of some other means of interpretation.

What types of tests have we?

There are many tests on the market that purport to test intelligence. They are classified in two ways:

1. They are either administered to one individual at a time, for example, the Stanford 1937 revision of the historic Binet test, or they are administered to groups, for example, Kuhlmann-Anderson Intelligence Tests or the American Council on Education Psychological Examination.

2. Tests may be grouped according to whether they rely on language items or nonlanguage items. The former type is familiar enough. The latter consists of tasks like putting together the scrambled parts of a head or a man, or putting diversely shaped blocks of wood or paper into holes with corresponding shapes. These "performance" tests are used whenever the testee is ignorant of the language or for one reason or another cannot use the language. There are a few group performance tests, for example, the Goodenough "Draw a Man" test and the Pintner Nonlanguage Mental Tests, but most group tests are verbal and most performance tests are individual.

As might be expected, the individual test is preferred whenever the necessary time, skill, and money are available. When there is doubt about the results of a group test, an individual test is used as a check. Individual testing can take care of some variables that have to be ignored in group testing. Health, cheerfulness, interest in the test, worries, and so on, are not, as a rule, evident to the group examiner. Because these variables do make a difference in test scores, the advantages of individual testing are clear enough.

Yet the great value of the intelligence test as a diagnostic and prognostic instrument would be largely lost if we had to rely exclusively on the individual test. Given enough of them over the school period and an intelligent interpreter, the group tests can give important and reliable information.

Tests are now available for all ages from early infancy to old age. There are too many to list and to evaluate in a chapter in a book on general psychology.⁵

In general, our test instruments measure what Thorndike called abstract intelligence. No comparably reliable or valid tests are as yet available for concrete and social intelligence.

Is intelligence inherited or acquired?

That our physical characteristics are largely inherited from our ancestors nobody denies. That our knowledge of algebra is inherited nobody asserts, but whether our ability to *use* the bodies we have and to *learn* algebra is inherited or acquired has been and still is a matter of vigorous controversy.

Parents are naturally concerned about the intelligence of their children, and they would like to know rather early in the game how matters stand. Intelligent parents hope that their children will inherit this intelligence. Dull parents—if they know they are dull—rather hope that a favorable environment will improve their children's mental ability.

The invention of intelligence tests has enabled psychologists to try to answer this question of heredity and environment "scientifically," with the result that a huge literature is now available on the subject.

How are these studies conducted?

1. By finding the degree of resemblance in intelligence scores (on tests) between people of varying degrees of blood relationship. In general, it has been found that the closer the blood tie the closer the resemblance in performance on intelligence tests (41, 42, 43).⁶

2. By finding the degree to which the IQ of an individual or of groups remains *constant*. The more constant it is the less effect, presumably, environment has upon it—if the group is subjected to changes in environ-

⁵ For a listing of these and all other commercial tests and their evaluation, consult *The Mental Measurements Yearbook*.

⁶ According to Freeman (44), the coefficient of determination between the IQ's of children brought up in the same home but not related by blood was .11, as compared with a coefficient of .25 between real siblings brought up in the same home.

ment. By and large, the studies on identical twins with the same and differing environments, studies on foster children, and on groups of children attending nursery schools seem to show that the IQ remains fairly constant unless the environment changes radically and fairly early in the development of the child.

3. Some studies reveal differences in ability due to the peculiarities of particular culture environments. Thus Saltzman (45) found that children from acutely underprivileged homes were superior in counting and handling of money and in sensory discrimination. Children from high-level economic homes, on the other hand, excelled in the verbal tasks usually found on intelligence tests.

These studies are still inconclusive, although they probably have reduced the confidence of the hereditarians. No one, however, has argued that the total score made on an intelligence test is due to heredity and none of it to environment. Different cultures do produce different environments, and these do put a premium on some abilities (46). Nor can it be denied that the test makers favor those abilities which produce the kind of success that is sought by the dominant groups in their own culture.

The one fact that stands in the way of placing too much faith in the environment to effect changes in intelligence is the difference in abilities within any group that has the same or much the same environment. Within each subculture there are still great differences of ability on almost any criterion one cares to choose. Not all Samoans are equally skilled in the catching of fish nor all underprivileged children in dodging streetcars or counting money.

Nor do children from economically high-level homes show the same level of ability. Differences in environment might explain, for example, why college graduates have an average IQ greater than that of high school graduates but not why among college graduates there is such a wide spread of ability even in scholastic work.

Furthermore, it would be strange if our nervous systems and brains were products of heredity and the functions depending on them did not depend on hereditary factors.

There is, however, no practical reason for anyone's getting too excited about this controversy because:

1. So few people operate at the peak level of the intelligence they happen to have that they should improve their achievements enormously before complaining about niggardly ancestors.

2. When we inherit we inherit from the whole line of ancestors and not from our immediate parents only. Hence parents should not overestimate their contributions or their lack of them to their offspring. Their very bright Johnny may be a tribute to a bright grandfather and not to themselves.

3. Those who fight to improve environment for the underprivileged need not give up their efforts on the grounds that, if intelligence is inherited, there is nothing to be done about improving it. Presumably social reformers are not inspired simply by the desire to raise the IQ's of the underprivileged. They are motivated by the desire to make available to as many people as possible the values of life in a highly industrialized and technological society. These values are not achieved by high intelligence alone, and they can be achieved whether the intelligence quotient is raised or not. Thus cheap electrical refrigerators, automobiles, improved medicines, and so on, can be valuable to high, middle, and low IQ's alike, and so can a host of more spiritual values, given certain character traits, for example, the will and determination to make the best use possible of whatever capacity one happens to have.

Still there are limits to what an environment can do, and this gives intelligence tests their guidance value. It is fairly hopeless—unless the tests are immoderately awry—to expect a boy with an IQ of 85 to do well in an engineering school. Even in high school there are subjects that it is profitless to teach to IQ's below a certain figure unless they are especially adapted for the slow learner.

Yet even this common-sense conclusion is challenged by the contention of Speer that with proper training the IQ's of children of mentally defective mothers can be raised (47).

Schmidt (48) claims to have improved the intelligence of "feeble-minded" children by correcting their emotional maladjustment. However realistic or optimistic this claim may turn out to be, the work of Axline (49) does seem to suggest that in some cases at least a very low IQ was due to strong emotional blocks. If this is the case, then, of course, we have no further excuse for mentally defective children or adults. But it is still doubtful that all mentally defective children are defective by virtue of emotional blocks. All that these studies show is that some behavior judged to be due to some inherent mental deficiency is due to something else instead.

Is there a general intelligence?

Early students of the problem of intelligence were likely to think of it as a general quality of the personality that made a person bright—like a strong light that illuminated everything on which it fell. Spearman (50) held that there was a general factor g which made a person competent in whatever he undertook, and it was in the differences of g that differences between the genius and the imbecile lay.

On the other hand, there is a specific s factor that enters into some tasks but not others. Some s 's have more scope than others.

This view was strongly opposed by Thorndike (51), who held that there were a large number of intelligences and no general intelligence. In more recent times a statistical procedure called factorial analysis has been effectively used, especially by L. L. Thurstone (52), to show that there are a number of relatively independent factors that make up the various kinds of ability that intelligence tests purport to measure.

How intelligent a person is, according to this view, depends on how much he has of each of the different factors. He may have a high amount of each, a lot of some and little of the others, or very little of any of them. For guidance and diagnosis it is generally more useful to have a person's measurements on five or six dimensions than on one. For children of five and six Thurstone named the following factors in 1946: verbal meaning (V), perceptual-speed (P), quantitative (Q), motor (M), and space (S).⁷

How is intelligence distributed?

If we go by the results of intelligence tests we have to conclude that intelligence is distributed after the same pattern as height, weight, strength of grip, and practically every other human physical and mental trait. We call it the pattern of the normal probability curve. It is roughly the number of times that various combinations of heads and tails would turn up if we tossed ten pennies a great many times (let us say more than 1,000). The number of times we got ten heads would be very small. For the most part we would be getting five heads and five tails, four heads and six tails, and so on (see p. 76).

⁷ Garrett proposes what he calls a differentiation hypothesis, which holds that with increasing age there "appears to be a gradual breakdown of an amorphous general ability into a group of fairly distinct aptitudes" (53).

Similarly, in the case of intelligence we find the following distribution:

TABLE 2

| IQ of | * Per cent of Cases in Stanford 1937 Revision Standardization Group |
|------------|--|
| 150 and up | .2 |
| 140-149 | 1.1 |
| 130-139 | 3.1 |
| 120-129 | 8.2 |
| 110-119 | 18.1 |
| 100-109 | 23.5 |
| 90-99 | 23.0 |
| 80-89 | 14.5 |
| 70-79 | 5.6 |
| 60-69 | 2.0 |
| 50-59 | .4 |
| below 50 | .2 |

* Adapted from Lewis M. Terman and Maude A. Merrill, *Measuring Intelligence* (Boston: Houghton Mifflin Co., 1937).

The feeble-minded, about 2.5 per cent of the population, vary in IQ from somewhat above zero to 70, with idiots ranging from 0 to 25, imbeciles from 26 to 50, and morons from 51 to 70. Not only do these lower grades of intellect have a slow rate of mental growth, but they reach their limits rather early in life. Consequently, their final development ranges from that of a two- or three-year-old child to that of a ten- or twelve-year-old child. As they grow older chronologically, their behavior becomes more childish and backward when compared with that of their age mates.

What is the relation of IQ to vocation?

As was pointed out in the early paragraphs of this section, intelligence is invariably defined in terms of what brings success and prestige in a given culture. We would expect, therefore, that the occupations that are highly regarded would be the ones that require high scores on intelligence tests. Studies on the intelligence levels of the various occupations confirm this, albeit in a rather rough fashion (54).

In general, occupations that require book learning or a high order of symbolic skills (accounting, law, engineering, medicine) require higher IQ's than those that do not (teamsters, barbers, painters). All this means is that, on the *average*, men in the former occupations do have higher IQ's than those in the latter ones, but about one-sixth of the lawyers have IQ's no higher or not much higher than the average of male clerk typists and radio repairmen. And about one-sixth of the radio repairmen have higher IQ's than the average of lawyers and accountants.

From all the foregoing and much more that could be said, we can be sure that intelligence is one of the major conditions of learning, so much so that some psychologists think that it might be defined as the *ability to learn*. Perhaps this is not exactly what we mean by intelligence because factors other than intelligence enter into the amount learned and perhaps the speed with which it is learned. Nevertheless, all testing of intelligence assumes that when the opportunity for a group to learn has been equal the differences among the individuals in the group must be due to differences in capacity.

We can also conclude that high ability to handle symbols at a high level of abstraction is not found in large proportions of the population. Because so much of our technological and industrial civilization depends on theorists who make technological advances possible, there is a high premium in our society on abstract intelligence. On the other hand, in a highly complicated society managing people becomes just as important as managing symbols, hence social intelligence also is highly prized. Further, to remain a nation of skilled and ingenious workers we need high concrete intelligence also.

Finally, the way intelligence (the kind we can measure, at any rate) is distributed tells us at a glance the root problems of any school system that promises to educate all the people. If it is to fulfill this promise, it will confront differences in intelligence that will put extraordinary strains on even the most flexible of curricula.

SUMMARY

In this chapter we undertook to examine more closely one of the detailed processes by which experience develops from simple beginnings to complex endings—learning. It refers to any change in behavior that can be traced to the effect of some previous experience rather than to a struc-

tural change of the organism or to some process that is being guided by hereditary factors.

The following questions may be asked about learning: (a) What takes place in the organism when it learns? This is a matter of both description and theory, and one depends on the other. (b) What are the conditions of learning? In other words, with what other aspects of behavior can learning be correlated? Finally, (c) is learning all of one kind or of many kinds?

Under conditions of learning, we discussed the relations between learning and (a) methods of studying learning, (b) motivation, under which heading we considered reward and punishment, the law of effect, interest, competition, and knowledge of results. The upshot of this discussion has been that motivation is essential to learning, but that the learning situation is so complex, even in animals, that we can hardly ever isolate simple motives so as to measure their effect on learning. Nevertheless, the experimental work does give us valuable clues for the control and promotion of learnings.

Although repetition or practice has a definite effect on learning, it is not mere repetition that brings about improvement, but rather the kind of repetition that permits the organism to note its successes and failures.

Social climate also affects the learning process, especially in the formation of attitudes and emotional habits.

Thus tasks that are strongly structured, that is, that have patterns easily discernible, are easier to master than those whose parts do not belong to any discernible pattern. Likewise tasks that have clear relations to other tasks are easier to learn than isolated ones.

Intelligence is regarded as one of the major conditions of learning. Hence we discussed in considerable detail the methods of measuring it, the meaning of these measures, the relation of intelligence to vocation and success in general. We took the view that intelligence as measured by intelligence tests is largely a result of heredity, although much of the score obtained on current intelligence tests reflected environmental forces, such as the culture and special training, and such personal factors as motivation, level of aspiration, and so on. In spite of these limitations, it was argued that intelligence tests are valuable tools for educational diagnosis and prognosis.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: The construction of an intelligence test

Assignment: Read H. E. Garrett, *Great Experiments in Psychology* (3rd ed.; New York: Appleton-Century-Crofts, 1951), Chap. 12.

Questions for Class Discussion

1. List the five requirements which the Army Intelligence Test was expected to meet.
2. Was it fair to include a general information section on this test? On what grounds could it be defended?
3. Why did the statement that the average mental age of the American soldier was 14 years arouse indignation? On what misunderstanding was it based?
4. How do we account for the fact that World War II inductees scored higher on the Alpha test than draftees of World War I?
5. What can be safely concluded about the data given on the comparative intelligence of various nationalities?

PROJECT II

Topic: The effect of differing environments on intelligence scores

Assignment: Read Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart and Co., 1949),

Chap. 8.

Questions for Class Discussion

1. Were the tests used fair to the Colvin Hollow children?
2. Do these studies (in this chapter) tend to support the claims of the hereditarians or the environmentalists? Give the evidence for your conclusion.
3. Do you find any evidence in this chapter for "types" of intelligence, for example, the types distinguished by Thorndike?
4. Is there any evidence for or against the statement that intelligence is the quality of behavior that leads to success in a particular culture?

PROJECT III

Topic: To determine the effectiveness of certain factors on learning

Procedure

1. Ask about 10 students to make a list of the names, dates, and places in American history that they can recall in 10 minutes.
2. Have them indicate by the side of each item *why* they think they were able to recall it.
3. Inspect the results to see if any pattern emerges with respect to (a) the items recalled, (b) the reasons for recalling them.

RECOMMENDED READINGS

- GOODENOUGH, FLORENCE L. *Mental Testing*. New York: Rinehart and Co., 1949. See the first five chapters for the historical background and the course of development of intelligence testing.
- HARTMANN, G. W. *Educational Psychology*. New York: American Book Co., 1941, Chap. 6.
- HOLLINGWORTH, L. S. *Children above 180 IQ. Stanford-Binet*. Yonkers, N.Y.: World Book Co., 1942.
- McGEOGH, J. A. *The Psychology of Human Learning*. 2nd rev. ed. New York: Longmans, Green and Co., 1950, Chap. 3 on conditioned response learning and Chap. 9 on transfer.
- STODDARD, G. D. *The Meaning of Intelligence*. New York: Macmillan Co., 1943. A strong emphasis on the environmentalist point of view, Chap. 13.
- SUPER, D. E. *Appraising Vocational Fitness by Means of Psychological Tests*. New York: Harper & Brothers, 1949, Chap. 6 on intelligence.
- TERMAN, L. M., and ODEN, M. *The Gifted Child Grows Up*. Stanford, Calif.: Stanford University Press, 1948. This is a famous report on a long-range study of children with very high IQ's.
- Thirty-ninth Yearbook of the National Society for the Study of Education*, 1940, Pt. I, for a rather technical but authoritative summary of the nature-nurture controversy in intelligence.

Types and Theories of Learning

LEARNING BY CONDITIONING

*What is learning by conditioning?
Why can learning by conditioning be dangerous?
Why can learning by conditioning be helpful?*

LEARNING BY TRIAL AND ERROR

*What are the characteristics of trial-and-error learning?
Which "random" movements will be repeated?
What do we learn by trial and error?
How does trial and error compare with conditioning?*

LEARNING BY INSIGHT

*What is an insight situation?
How are the three types of learning related?*

LEARNING THROUGH THINKING AND DISCOVERY

*Is thinking a form of learning?
Are there distinct types of thinking?
How are concepts and meanings developed?
What happens when we try to solve problems?
What is the role of language in creativity?
Can learning be creative?*

THEORETICALLY, it is the aim of the psychologist to reduce all learning activities to one basic formula. Hence he is forever seeking the formula that will enable him to speak of learning to do quadratic equations, ride a bicycle, and restrain his passions in the

same set of words and ideas. This quest is described under the general topic of "Theories of Learning."

But, as was noted in the previous chapter, how many types of learning a psychologist chooses to list and how he describes each type depends on the theory of learning to which he already subscribes. In other words, to describe and to explain learning come pretty much to the same thing, although they are not the same. For example, the gestaltist and the behaviorist would agree on what a rat running a maze actually did in terms of where he ran, how many wrong turns he took, and how many trials it took him to get to the right path. But when they try to describe what went on *inside* the rat the agreement ends, because each will describe the process in terms of his own theory, and these theories do not agree.

In this chapter we shall discuss three types of learning situation: learning by conditioning, learning by trial-error, and learning by insight. This is the way learning tends to be described and explained by three types of current learning theory.

In the second half of the chapter we shall attack the learning problem somewhat differently. We shall try to see how learning takes place through thinking. Learning by thinking is not really a new type of learning. Rather, it brings together learnings achieved by conditioning, insight, and trial and error. But it can bring them together in special ways and, on occasion, in novel ways. In other words, the first part of the chapter tends to stress those types of learning in which the learner adapts himself to the situation; the second part, however, stresses the kind of learning that we can achieve when we rearrange the environment or the situation so that new patterns emerge.

LEARNING BY CONDITIONING

Commins and Fagin (1) list three types of learning situation. The first is the one in which the cues (or clues) to the new pattern of experience are forced upon the learner. The second is one in which these clues are hidden from him. The third is one in which the clues lie open to the inspection of the learner.

Learning situations differ, so to speak, in their transparency, that is, in their meaningfulness, or in the amount of help they afford the learner in extricating himself from whatever difficulty drew him into the learning enterprise in the first place.

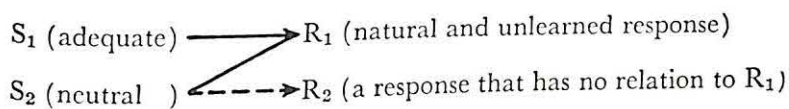
What is learning by conditioning?

We have already discussed the behavioristic theory of learning as conditioning (Chap. 4). On this theory, learning consists of getting the organism to respond to a neutral stimulus S_2 as it does to an adequate stimulus S_1 when there is no relation between S_1 and S_2 other than temporal contiguity (occur close to each other in time).

For example, when Pavlov conditioned his dogs to salivate at the sound of a bell (S_2), as they did to the presence of food in the mouth (S_1), then it was proper to speak of the dogs as learning something. What did they learn?

The dogs at the sound of the bell (S_2), instead of merely pricking their ears, acted as if they were about to eat. In other words, the bell sound, coming slightly before the meat (S_1) during the training period, had come to be perceived as a sign of the food (2).

This sounds very much as if conditioning were a mechanical substitution of one stimulus for another, for example, S_2 for S_1 .



Careful study of these classical conditioning experiments shows that the process is perhaps neither so simple nor so mechanical as it seems.

1. The animal can be fooled only so long. If the bell is sounded *without* the food being given once in a while, he stops regarding the bell as a sign of food. This is called *experimental extinction* of the learning (3). On the other hand, some time after the dog apparently has broken the S-R bond between the bell and salivating, the sounding of the bell will cause him to salivate again. This is called *spontaneous recovery*. But was the learned response ever lost or did the dog, while being fooled, become alert and inhibit his response—a bit of control that he could not exercise when caught off guard somewhat later?

2. The dog does not salivate in quite the same complete and efficient way at the sounding of the bell as he does when the food is really presented to him. He makes instead a sort of *token* response (4).

There is an arbitrariness in the conditioning procedure that leaves the learner little choice. He is forced—unless he can leave the experiment al-

together—to form some kind of connection between an old response and a new stimulus, that is, the cues are forced upon him.¹

All human beings speak some language, and all languages contain words that do not resemble the objects they name. In other words, elements of experiences that occur simultaneously or in close sequence often enough may become related as sign-to-thing. One becomes a signal for the expectation of the other. Sometimes it takes quite a while for this to occur; sometimes one presentation, if vivid enough, is sufficient.

This explains why so much of human experience is irrational, or at least nonrational. Rational experience is made up of elements that are related to each other logically. A and B are logically related if, knowing something about A, we can infer something about B. Thus if A implies B, then we know that if B is false, A also is false, but that if A is true, B must be true. If X is the cause of Y, then, given one, we can infer the other. However, if A and B are connected in our experience by accident only, then we may be mistaken if we regard A as a sign of B. Thus people have been avoiding the underside of ladders for centuries in the belief that there is more than an arbitrary connection between ladders and misfortune.

Why can learning by conditioning be dangerous?

It is clear that experience develops enormously by this process of conditioning. It can be a dangerous process for the following reasons:

1. From the very first day, the infant is subjected to both intentional and unintentional conditioning. His yearnings for food, comfort, and love are used to condition him to respond to the commands of those around him. In the hands of unskillful or unscrupulous adults, almost anything can be made the signal of anything else. He can be made to fear, hate, or love all sorts of people, words, and situations. He can be made aggressive or timid, nasty or nice, charming or revolting, happy or wretched. *Whatever happens* to stimulate him just prior to his experiencing distress or relief from distress may become itself distressful or a defense against it.

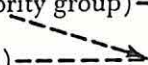
2. Even without deliberate training, the infant is subjected to experiences that happen to him in pairs or clusters. The plaster falls from the ceiling with a crash just after the child is kissed by his grandmother. He

¹ Not everything can become the sign of everything else with equal ease. Valentine (5), for example, could condition a child to react to a caterpillar as it did to a loud whistle, but he could not get a pair of opera glasses to serve as a signal of the fear aroused by the whistle. However, the exceptions are relatively unimportant.

may fear Granny for years. He may even dislike being kissed, first by older ladies and subsequently by younger ones. As the thunder roars, he may note the agitation of his mother. As a result, he may fear thunder for the rest of his life. An unhappy love affair can make a person hate the city in which it occurred, while a faint, almost nonexistent resemblance of a girl to a favorite aunt may impel a young man to propose to an otherwise quite unsuitable life partner.

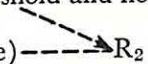
A child without any deliberate teaching may learn to regard a member of a minority group with the same feeling as he regards his father's disapproval.

S_1 (a member of a minority group)----- R_1 mild interest
 S_2 (father's disapproval)----- R_2 fear



Even more disturbing is the fact that a stimulus of which we are not fully conscious but which somehow registers on our nervous system can become the signal for a response wholly unrelated to it.

S_1 (tones below the threshold and not heard)----?
 S_2 (flash of light into eye)----- R_2 (contraction of pupil)



After a number of presentations of S_1 and S_2 together, S_1 alone was able to cause R_2 , the contraction of the pupil, to occur (6).

In the light of this experiment, it is not difficult to understand how very weak stimuli can be conditioned to elicit responses. How much of women's intuition consists of these subliminal clues (stimuli too weak to be perceived) that have accompanied certain feelings or actions so that these are now anticipated when these little clues occur?

How does a child guess so unerringly just how much he can harass his elders with impunity? Is it because their voices and mien, when real anger and punishment occur, are a little different from those accompanying "empty" threats?

3. There is the further fact that feelings, words, actions, and contractions of muscles can all become woven together into clusters so mutually entangled that the occurrence of any one will arouse any or all of the others.

For example, suppose that an infant had a harsh father who on frequent occasions:

S_1 (called the boy a fool and clumsy) --- R_1 (listening)

S_2 (inflicted physical punishment) ---- R_2 (fear-hatred-pain)

Now, originally the response to S_1 might have been listening or perhaps a slight uneasiness at the harsh tone of voice. But the sequence of criticism and punishment soon served to make the criticism the sign of impending punishment. And just as the actual punishment induced fear and hatred plus all the changes in the heart, lungs, liver, and glands that any strong emotion induces, so now does the criticism. After a while it is no longer necessary for the father to punish the child; criticism is enough. Suppose that in later years other adults criticize the child. What will be his reaction? Very possibly there may be enough resemblance between the criticism of these people with respect to the words used or the tone of voice, or both, so that the growing child will react with fear and hatred to this criticism as he did to the criticism of his father. Perhaps any criticism whatsoever and from any source may come to arouse a profound resentment and hostility.² And perhaps certain disturbances of the inner organs (viscera) may in turn arouse images of angry faces, impending criticism, and punishment.

Why can learning by conditioning be helpful?

How much of our experience is due to this conditioning process? Without question, a good portion of it. Nearly all of our well-established habits, including that great complex of habits we call language, are products of conditioning.

Our emotional life is shaped by conditioning. Unfortunately, these emotional learnings are not easy to modify, because we have long forgotten, if indeed we ever knew, the original stimulus and response by which our present response was conditioned.

Is all learning by conditioning bad? Not necessarily. For example, is it bad to condition the child to respond with the word "fifteen" to the stimulus "10 plus 5" or "3 times 5"? True, the response does not prove understanding on the part of the learner, but the stimulus and response are related logically. The tendency to jump out of the way when an automobile horn is heard close by or to stop a car when a red light is seen at an intersection are useful conditionings and not illogical at all.

² This is known as stimulus generalization and means that similar stimuli are responded to as if they were identical.

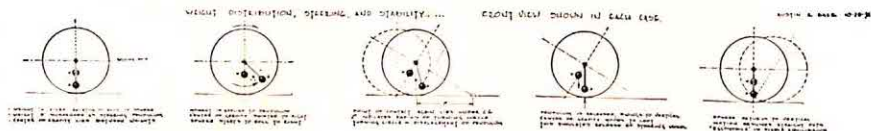
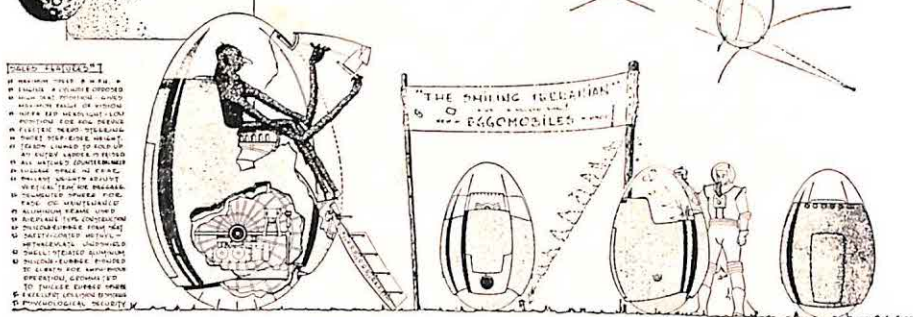


Philip Gendreau, N.Y.

ILLUSTRATION 18

The Pentagon and its surrounding cloverleaves might answer the definition of a maze, which poses a problem in analysis, in which inability to "catch on" forces the organism to adopt the relatively unintelligent, trial-and-error type of learning. Could this apply to the above picture?

E660MOBILE



Courtesy Idea Technology, Inc., N.Y.

ILLUSTRATION 19

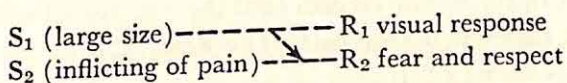
How creative imagination combines with scientific problem-solving is illustrated in this design by Austin R. Baer, a former student of Professor John Arnold in his Creative Engineering course at Massachusetts Institute of Technology. Here the problem is to provide an automobile for clumsy bird-like inhabitants on an imaginary planet. The designer, using known mechanical principles, has applied them creatively to a previously unknown situation and arrived at a workable solution.

So, if most of our unreasoning and stubborn prejudices and our somewhat stupid hatreds can be blamed upon conditioning, many of our most useful reactions must be credited to it.

In other words, there are acts that for the sake of efficiency *ought* to be automatic and "unthinking." The multiplication tables should be memorized and so should certain processes of arithmetic, reading, and spelling. The difficulty with mechanical nonlogical responses is that they may be mistaken for the products of thought or may interfere with such thought when the situation cannot be handled effectively by automatic, mechanical methods.

Chapter 7 discussed the proliferation of needs so that the desire and need for shelter ended with the desire for a home of a certain kind, located in a certain neighborhood, and costing a certain amount of money. We can now see that conditioning plays a large part in this proliferation.

Let us suppose, for example, that the sheer size of the parent comes to be regarded by conditioning as a sign of power.



If the stimulus of size is now generalized, all large objects inspire a form of fear and respect for the power of which it is taken to be a sign. Largeness of house, barn, or cave could thus become a sign of power and the prestige in which power is held. We might come to believe that, if one wishes to have prestige via shelter, shelter must be large and impressive.

If power commands sexual admiration, the ability to command a large expensive house also is taken as a kind of power to command sexual admiration. In turn, to the woman the ability to attract a rich man is a tribute to her own power.

The examples given illustrate behavior that is better explained by conditioning than by the other learning theories. In all these examples the connections to be formed are selected by agents and circumstances other than the learner himself.

LEARNING BY TRIAL AND ERROR

There are situations in which the learner is asked to solve a problem, but the cues to the solution are hidden from him. When we are handed a tantalizing mechanical puzzle we fiddle with it energetically until some-

how the thing comes apart. We then put it together again and go through our repertoire of trials until we succeed again. If we have nothing better to do we finally become adept at the solution of the puzzle, that is, we get it apart in less and less time.

What are the characteristics of trial-and-error learning?

Three points are to be noted about this kind of learning. (a) The successful movement occurs by chance without the learner planning it that way. (b) The learner cannot quit the task. (c) Improvement in performance can come about without the learner's ever understanding why he is doing what he is doing.

The now classic experiment to demonstrate this type of learning was performed by Thorndike. He placed a cat in a cage whose door could be opened if the proper lever was depressed. It took the cat 160 seconds to get free on the first trial, nearly 40 seconds on the second trial, and 90 seconds on the third. By the twelfth trial the cat was emerging in about 10 seconds. At no time, according to Thorndike, did the cat "catch on" to the scheme of things (7).

Which "random" movement will be repeated?

What happens as the cat learns to open the cage? Why do errors decrease? Why does the cat not "catch on" to the scheme of things?

According to learning theorists like B. F. Skinner (8), what is learned is what is *reinforced* by satisfaction of some kind. This is similar to what Thorndike called the *law of effect*, which says that the response that was satisfying would tend to be repeated, while responses with painful consequences would tend not to be repeated.

We may recall from the previous sections that the dogs in Pavlov's conditioning experiments learned to connect salivation and the bell by means of the meat powder. Every time the meat powder was given the dog, it acted as a reinforcement. After a while he would salivate at the sound of the bell alone, but if the meat powder was withheld too often, the learning would deteriorate. In other words, the bell ceased to be a reliable signal for meat powder (*experimental extinction*).

That reinforcement is not merely a mechanical process is brought out by the fact that learnings reinforced periodically resist extinction longer

than those reinforced on every trial (9, 10). And, while learning proceeds somewhat more slowly under irregular reinforcement than with regular reinforcement, the extinction is much slower (11).³

Blodgett (12) showed that rats roaming a maze without being rewarded did learn something, because on the eighth day, after being rewarded for the first time on the seventh day, they made remarkable improvement—almost as if they had been rewarded on each of the first seven days. This has been called latent learning, and it leads us to regard with interest the point that Woodworth (13) makes:

The present thesis . . . is that perception is always driven by a direct, inherent motive which might be called the will to perceive. Whatever ulterior motives may be present from time to time, this direct perceptual motive is always present in any use of the senses. It is impossible to look without trying to see or to listen without trying to hear. To see, to hear—to see clearly, to hear distinctly—to make out what it is one is seeing or hearing—moment by moment, such concrete, immediate motives dominate the life of relation with the environment.

Why did the cat not catch on to the scheme of how the cage and levers worked? Gestalt psychologists, notably Köhler (14), would say that the situation was too complex for the cat to catch on. In other words, the cues were hidden. We can generalize. In any situation where the organism cannot discern any pattern, all it can do—if it must do something—is to try out whatever he can do until something succeeds.

There are, however, several varieties of trial and error or trial and success. One kind can precede understanding. We can manipulate the mechanical puzzle before catching on to the scheme of it. Once we do, trial and error ceases because we know not only *how* it comes apart but also *why* it comes apart in this way.

Another type of trial and error follows failure to understand. If we do not give up the task altogether, we simply try one thing after another.

What do we learn by trial and error?

This type of learning is exhibited frequently in the mastery of motor skills, especially if one is forced to pick them up without much guidance.

³ One wonders whether the regularly reinforced learning is not a quite different pattern from the irregularly reinforced one. The first inspires the feeling of *certainty* that a response will lead to satisfaction, whereas the second can inspire only a feeling of *probability* that satisfaction will accrue.

We learn how to fix the carburetor in this way—when we do learn—if there is no one around to show us how to proceed.

It is more than likely, moreover, that we indulge in some trial and error even as a preliminary to rational problem-solving. For unless the solution comes immediately by direct inspection, what can we do other than to make some tentative random motions toward our objective?

Thus even a good mathematician confronting a new and difficult problem may try out his repertoire without really knowing why he picks one approach rather than another. Of course, the overtures he tries out are mathematical and not musical or historical.

Trial and error can be thought of as a loosely controlled preliminary search for cues as to what in the situation will serve as a sign of what is to follow. Thorndike's cat did not know what to expect until the door opened for the first time, and it was more than the poor cat could do to remember what it was she did that gave her freedom. On the second time around, however, the situation had changed enough so that one region of the cage may have actually looked more promising than another, for it never again did take the cat anywhere nearly so long to find the latch as it did the first time. Although she may never have realized that it was the latch that opened the door, the latch area or region of the cage must have acquired a friendlier and more promising appearance than did the other parts.

We develop our social techniques largely through trial and error. For example, tact is a name for a way of dealing with others so that they are not unnecessarily offended or hurt. Some people do deliberately undertake the task of learning to be tactful. Others seem to have it without training. Perhaps we can tell at a glance—without training—whether or not other people are being distressed by a situation. This would be a kind of empathy whereby we would read in the facial or bodily patterns of others the feelings we ourselves are experiencing.⁴ Nevertheless, it is equally possible that the tactful hotel manager learned this acute sensitivity to the feelings of others by social trial and error. Given a man who wanted to please others hard enough and tried to do so often enough, the result might well be a tactful manager.

Or, to take another example: A boy makes tentative approaches to sundry girls and learns through his successes and failures a repertoire of techniques with which to attract the opposite sex or a set of maneuvers designed to keep him out of their way.

⁴ More will be said later in this chapter about empathy in relation to creative thinking.

How does trial and error compare with conditioning?

How do these two types of learning compare? To begin with, conditioning has its greatest sway in the early years, and that gives it a tremendous advantage. Then, too, it is the teacher of our emotions, our viscera, our loves, and our hates. We are told that youth is a blackmailer that makes us pay over and over for our mistakes. On this ground alone conditioning's importance can scarcely be overemphasized. Finally, conditioning, by its mechanical nature, by the fact that it *forces* the cues upon the learner, is the great instrument of mass communication and mass domination.

Because our language is heavily encrusted with emotional deposits and because our emotions are drives to action, he who controls the language of men also controls their action. One can fight against this coercion by independent thought, feeling, and action. However, because this fight is neither easy to carry on nor always successful when carried on, the power of conditioning is literally an "awful" one.

Trial and error is, of course, a freer, albeit a not much more rational, way of altering experience. It is freer because the learner has to find his own cues, and often the cues are there to be found. However, when the situation is such that there are no real cues, or they are too well hidden to be found, then the organism fails in the task. How much of this failure the person can take without disastrous consequences has been called the level of his *frustrational tolerance*.

Next, trial and error does make sense if there is a success. For then the learner can be sure that there is a real connection between something he has done and the reward or success. He may not know just what it was that "opened" the door or got the car started, but he can infer that it was something he did and not the result of magic. Learning by this method is effective because it rewards only the right response, and it invariably does that.⁵

On the other hand, trial and error can be wasteful because so many errors have to be eliminated. Some are never eliminated and some are not eliminated well enough. Where the organism can leave the field it may not persist long enough either to get a success or to eliminate the wrong responses.

⁵ While discussing during a lecture the possibility of constructing machines to aid in the teaching of spelling and arithmetic, B. F. Skinner pointed out that such a machine could provide far more numerous and regular reinforcements than any teacher could possibly hope to provide.

LEARNING BY INSIGHT

In Chapter 9, when we were discussing the role of patterns in perception, we were, in effect, talking about learning by insight. It will be recalled that the Gestalt school had a good deal to say about Gestaltqualitäten, or qualities of the whole configuration. This over-all quality of a situation was held to be something over and above the sum of the elements that made it up.

What is an insight situation?

An insight situation is one in which the learner, in order to achieve his goal or to overcome an obstacle, has to change the way he perceives the situation. The cues for doing so are all in the situation. There are various types of insight situations.

Spatial relations. In the American Council on Education Psychological Examination there is a section of items called "Figure Analogies." Figure 29 is an adaptation of one of these items.

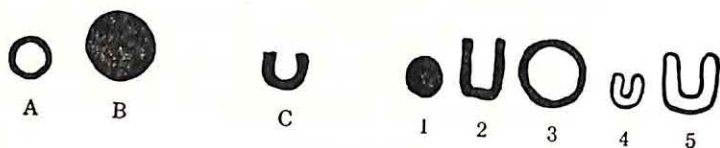


FIGURE 29

FIGURE ANALOGY. (Adapted by permission of The Educational Testing Service.)

The testee is asked to pick out a figure from the items numbered 1, 2, 3, 4, and 5 that will be related to C as B is related to A.

The crucial steps in this task are (a) noting and perhaps naming the relation between A and B: "B is larger than A and of a different color, but of the same general shape"; (b) keeping this set of requirements in mind while searching for a figure that will give C an appropriate mate; (c) comparing what is selected with the required relation.

The learner may try out each of the five figures, but on each try perception of the relation is what decides whether he accepts or rejects it.

An enormous volume of our experience is built up by this simple process of perceiving spatial relations. Things in our visual field are "above" or "beside" or "in front of," "behind," "larger than," "taller than," "shorter than," and so on, than some other part of the field.

Other qualitative relations. Similarly we immediately perceive differences among the qualities of colors, sounds, smells, shapes, tastes, touches, and pains, if these differences are above the threshold of consciousness. And we can train ourselves, within limits, to make finer and finer discriminations, which is nothing more than to say that we can immediately perceive smaller and smaller differences between two stimuli.

Differences in time relations also are perceived immediately, although our judgments can be of varying degrees of accuracy here. There is some evidence that the ability to estimate time is a matter of intelligence (15).

Conceptual relations. Another class of relations that require insight for their learning we may call *conceptual*.

In the word-analogies test in the Psychological Examination mentioned above, the testee is asked to pick a word that has the same relation to a test word as obtains between the two given words. For example: the pair "foot-shoe" is given. The test word is "hand." The testee is now asked to select from a set of five words the word "glove" that is related to "hand" as "shoe" is related to "foot."

There is no question here of *perceiving* a relation as in the figure-analogies test. If the pupil *knows* the relation between foot and shoe, the right response is almost immediately forthcoming; if not, then it will come only by chance. All reading involves this grasping of relationships among meanings or concepts.

Take another example: Suppose we are told that: $x + 5 = 2y + 5$. It then follows, we say, that $x = 2y$ because equals taken from equals leave equals. Here everything is a matter of getting an insight into the relations that obtain between sets of concepts represented by the symbols, numbers, equal signs, operations, and so on.

Many other instances could be cited, but enough may have been said to suggest the following generalization: *Whenever the task is to form a new perceptual or conceptual pattern of relations, the moment of learning is appropriately called insight.*

How are the three types of learning related?

Are there, then, three separate kinds of learning? Or is there only one kind having three different forms?

In the present state of our knowledge no one learning theory seems to explain all types of learning with equal ease, but it may be that they are

related more closely than would appear at first glance. For example, in the instances of insight that we have mentioned in this chapter, the learning was instantaneous or sudden. There seemed to be no gradual acquiring of experience or improvement of performance. The curve that describes insight learning is more likely to look like Fig. 30 than like Fig. 31.

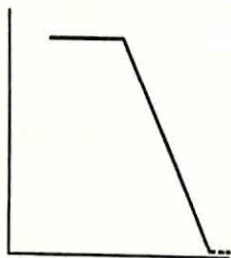


FIGURE 30

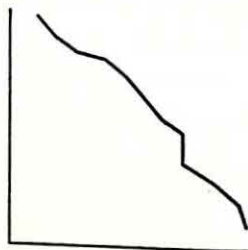


FIGURE 31

Nevertheless, the learner did not come to any of the tasks with zero experience. Thus, in the figure-analogies test, the testee had had some experience with visual forms. In the foot-shoe item, he had to learn the meaning of "foot," "shoe," and the relation of shoes to feet. Once learned, this relation of "covering" seems to be taken out (abstracted) and noted as a separate unity.⁶

It may be that the learning of the meaning of foot is best described by "conditioning" or some sort of trial and error with reinforcement, whereas matching foot-shoe with hand-glove is an example of insight.

We are dealing here with two kinds of connection. A man can hitch a trailer to his automobile so that wherever one goes the other also goes, but neither the car nor the trailer needs to have an insight into what has happened to either of them. Similarly connections can be made within our nervous system or between the contraction of a muscle and any other piece of experience without our being aware that they are united. Deliberate or chance conditioning operates in this way—uniting into a train of behavior what is not ordinarily or necessarily connected.

But now and then experience gets itself organized into patterns that do have sense, that is, the parts contribute to a scheme of things, a goal, a purpose, a design. Or the parts are connected in such a way that there is

⁶ Says Hull (16): "What is associated now with one thing and now with another tends to become dissociated from either, and to grow into an object of abstract contemplation."

free passage from one to the other, as in a geometry demonstration, or in a logical argument, or in any piece of rational thinking.

A connection, therefore, may be logical or arbitrary, and we can be aware of a connection within our experience although we need not be. Thus Pavlov, when conditioning his dogs, understood the connection he was making between food and the bell and perhaps even the dogs did, but what was happening in Pavlov was quite different from what was happening inside the dogs.

LEARNING THROUGH THINKING AND DISCOVERY

Is thinking a form of learning?

We have been asking what happens when learning takes place. And we have seen that we learn by conditioning, trial and error, and insight. By and large, however, the impression must have been given that learning is a pretty passive affair more or less thrust upon us by the exigencies of life. We are either conditioned by others or thrown upon our own resources to extricate ourselves from difficulties as best we may by trials and random successes.

However, we can also learn by thinking, that is, by going from what we know to what as yet we do not know. From a set of clues, the detective infers who the murderer is. From a set of axioms, postulates, and theorems, we prove or demonstrate new theorems. From a set of facts, the scientist develops a hypothesis or theory. From a set of impressions, the painter, poet, sculptor, or dramatist creates a new work of art.

All these passages from the "given" to the "inferred" are examples of the thinking process but, as we think, we also learn what we did not know before. Notice that we have to think *with* symbols, names of things, loves, hates, attitudes, and concepts, and these units of thought are learned by the processes we have already considered: conditioning, trial and error, and insight.

What is associative thinking?

Several types of thinking are commonly distinguished. The simplest form consists of just letting one set of images, words, or meanings follow another. This may be called associative thinking, because the sequence seems to be controlled by the laws of association. One word, one image, or one thought

suggests another because it resembles the other: a red dress makes one thing of a blue dress (the dress being the common element), or a red dress makes one think of Soviet Russia (the red being the common element), or the red dress may make one think of Millie X because one happened to see Millie X yesterday and she was wearing a red dress (here the connection is based on recency), or a red dress can make one think of someone who frequently wears one. Or it may lead one to think of its opposite—either a pale-pink dress or a man's red shirt.

On the surface this kind of associative thinking seems purposeless. In any event, the purpose is not clear. It also seems like a useless sort of business akin to daydreaming, but one never knows what will turn up when rummaging through a well-filled cellar or attic. A new phrase, a new outlook, sometimes even a new solution to an old problem, not to speak of old resentments and forgotten ideals, can turn up. So sheer associative thinking may have a value, although it does seem like the long way around to almost anywhere one would want to go.

Associative thinking can be called thinking only by extreme courtesy. It is relatively passive, and it is not really a process of inference in which the mind flows from data to conclusion.

Autistic thinking is more like thinking, for here we do conclude something from data, but the conclusion is guided by our wishes, hopes, and needs rather than by the logic of the situation. For example, a candidate for office infers that the voters love him, not because of any objective evidence but because his wish for success is so strong. The rules of logic provide us with a strainer, so to speak, that separates out the emotional elements from the rational ones. It is doubtful, however, that any of our thinking is wholly free from autistic elements.

What is deductive thinking?

A quite different type of thinking occurs whenever words, images, and meanings are woven into patterns according to the precise set of rules that we call formal logic.

If we argue that

All human beings have two legs . . . and if

All birds have two legs . . . then can we conclude that

All birds are human beings?

The rules of both logic and common sense forbid us to draw this con-

clusion, and Fig. 32 tells us why. Both small circles are within the large one (having two legs) but they *need* not be part of each other.

Yet we are tempted for a moment to accept the conclusion. Why? Because "having two legs" is common to both sentences (premises), so that we are inclined to conclude that they are equivalent in other respects as well. (In logic this might be an example of false analogy.)

Suppose, once more, we argue that if

All statesmen seek to achieve power in government . . . and if

All politicians seek to achieve power in government . . . then can we conclude that

All statesmen are politicians?

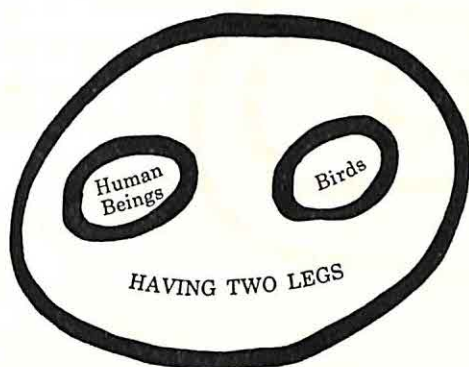


FIGURE 32

In this example some people would accept the conclusion, although according to the rules it does not follow. (Notice that in *form* it is exactly like the previous example.) But because "statesmen" and "politicians" are already connected in their minds, the conclusion may seem valid. On the other hand, some will disbelieve it because in their minds "statesmen" and "politicians" are mutually exclusive terms. However, neither the belief nor the disbelief would be *logically* grounded, although *psychologically* we could account for both.

It is not that men dislike to be logical or even that they lack the ability to be so. That they think logically so little of the time is probably due to the fact that certain *psychological* factors are too strong to permit it. Thus our wishes and the connections formed by our conditioning and habits impress their patterns upon our trains of thought and make them seem convincing and plausible even when the rules of logic are being violated.

At this point we may be getting confused. What is the difference between a logical structure and a psychological process? A general answer would be: The logic of deductive thinking is the set of rules that tells us what inferences are permitted and what ones are forbidden under certain circumstances. The psychology of deductive thinking, on the other hand, asks about what occurs in experience as we go from one step to another. Perhaps some examples will bring the differences out more clearly.

Suppose we argue that if

All Mongolians are slant-eyed . . . and if

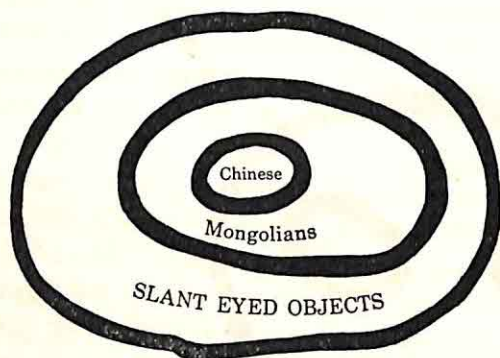


FIGURE 33

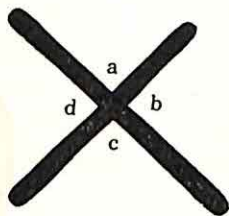


FIGURE 34

All Chinese are Mongolians . . . then

All Chinese are slant-eyed.

The rules of this type of deductive thinking permit us to substitute whatever we say about the *whole* concept for any *part* of that concept. Therefore, "slant-eyedness" can be predicated of Chinese, all of whom are included within the meaning of Mongolian. (See Fig. 33.⁷) In this reasoning task:

1. We were asked to understand the following notion: The *whole* class of Mongolians makes up a *part* of the class of slant-eyed people.

⁷ In arithmetic, for another example, we have the rule that it is permissible to substitute 5 plus 2 in place of 2 plus 5, but 5 minus 2 cannot be substituted for 2 minus 5.

Or, let us take another mathematical rule: Equals added to equals give equals, and equals subtracted from equals leave equals. This rule is used, for example, when we prove that opposite angles made by intersecting straight lines are equal. In Fig. 34 we are to prove that angle *a* equals angle *c*.

By definition, two angles that make up a straight line equal 180 degrees. Thus in Fig. 34 $a+b$, $b+c$, $c+d$, and $d+a$ each equal 180 degrees and therefore are equal to each other. Now, if we take the equation $a+b$ equals $b+c$ and subtract b from each side of the equation, we are left with a equal to c , which is what we wanted to prove in the first place.

2. While holding the first statement in mind, we were presented with the idea that the *whole* of the class of Chinese constituted a *part* of the class of Mongolians.

3. Keeping these two sentences in mind, we were then required to shift our attention to the relation between the class of Chinese and the class of slant-eyed persons.

4. By comparing the part-whole relation between both Chinese and slant-eyed people to Mongolians, we were in a position to apprehend the relation of these two classes to each other.

This is the pattern for all deductive thinking. It is a search for what ideas are equivalent so that they can be substituted for each other. These ideas may be of entities such as angles, the class of Chinese, or the number 7; or they may be of relations such as whole-part, cause-effect, in-front-of, and father-of.⁸

Deductive thinking is most successful when concepts are clearly defined as in mathematics, where it is decided ahead of time just what each symbol shall mean and what operations shall be permitted. Where words have cloudy, amorphous, ambiguous meanings, it is difficult to obey the logical rules. Every time we disobey we commit a fallacy. It is a source of continual debate, for example, as to what we can deduce about the rights and privileges of individual citizens from the proposition that all men are created equal. This is so because "equal" does not mean here what it means in arithmetic; nor can any dozen people agree as to what it shall mean.

How are concepts and meanings developed?

This brings us to an important and interesting question: How do people arrive at the meanings they give to their terms (words)?

Psychological meanings. The meaning of a word is *psychologically* whatever images, feelings, memories, expectations, or other words it happens to arouse. All psychological meanings are to some extent subjective, that is, they are to some extent peculiar and private to the person having

⁸ Spearman (17) speaks of the eduction of relations whenever two or more things are perceived. If I perceive a cup and a saucer, I immediately perceive them as different, as one *on top* of the other or as one *in* the other. But as soon as I can perceive cup-in-saucer I can also think coffee-in-cup, that is, the correlate of the original relation.

them, because psychological meanings grow through our experience with objects and people.

There is a fairly good core of common meanings for words that stand for common objects, such as automobiles, tables, chairs, stars, although each may also carry a fringe of private meaning. We can communicate clearly about these objects because there is a common meaning, and we can ignore our private meanings when talking to others. Thus, if I say, "Please move your chair over to the window," you will do so even if it so happens that the word "chair" has a private meaning for you as "something covered in red leather," whereas for me it has no such meaning.

Some words acquire strong emotional overtones. The sentence, Joe LMNOP is a "pink" or a "fellow traveler," has words that are used for reference (Joe LMNOP), which point to a particular person, but "pink" and "fellow traveler" vaguely point to some set of beliefs that the speaker strongly dislikes. What he is intending to say is: Joe LMNOP is a man to be strongly disliked. This is sometimes called an *emotive* use of language because it is used to express and to arouse emotion rather than to convey information.

Semantics is the study of language that emphasizes the various types of meanings words and sentences can have and the confusions of meanings to which we are liable. Semantics in recent years has tended to "expose" these confusions, showing how propaganda of all sorts operates to arouse our emotions by taking advantage of the psychological meanings of words and sentences.⁹

Obviously communications among groups and members of groups depend heavily on the meeting of minds as regards the psychological meanings of the language they use. And because psychological meanings are to some extent the product of a particular person's own peculiar history, there is always the danger of misunderstanding.

Yet with all the dangers that the emotive use of language entails, poetry

⁹ Ogden and Richards (18) pointed to one of the most important of these confusions, namely, the mixing up of what they called "referential" and "emotive" use of language. Referential use of language employs sentences that purport to convey information about something. The words in such statements refer to objects, and these objects can be identified and located by competent observers. Thus, "The green book is on the table in Room 41" is a referential statement. On the other hand, "This poor excuse for a man is guilty of the vilest treason" is a sentence that is intended to arouse certain feelings about the "poor excuse for a man." It may refer to something objective or it may not, but because it is a declarative sentence it is likely to be regarded as a statement of fact.

and literature in general would be virtually impossible without it. Imagine a state of affairs in which every word in a language was so precisely defined and so clearly understood by everyone that every person always got the same meaning from it. A poem written in this language would arouse precisely the same emotion, ideas, and images in every reader no matter how many times he read it. This kind of language is excellent for science and philosophy, but not for literature and eloquence.

Conceptual meanings. 1. To live with others in a common world of action we are forced to standardize our meanings. If we are to understand each other and work with each other, the tools, machines, and thousand and one objects of daily use must be called by the same name by all the users.

2. The study of language itself increases our vocabulary, and wide and careful reading helps us to use language with greater ease and precision.

3. The more we use language or objects or both, the more we tend to make finer distinctions and larger generalizations. Growth in meaning is like all growth, a process of differentiation and integration. An avid baseball fan accumulates a rich store of meanings for the concepts and words used in baseball. Whereas to the casual observer "pitcher" means the man who throws the ball to the batter, to the fan it means much more. There are southpaws and right-handers. There are curve-ball pitchers and speed-ball artists. Pitchers can be overhanders, sidearmers, and underhanders. This is differentiation which comes about as finer and finer differences are discriminated. In the other direction, the notion of good pitching unites for our fan a far wider variety of performances than it does for the layman. This is integration.

4. Concepts can have more precise meanings than are usually given to them in ordinary speech and life. Logic tries, among other things, to sharpen the meanings of terms. Each science tries to define its own terminology, so that all who use the terms mean the same thing by them. This gives us the difference between the logical meaning of a term and the psychological meaning. The former is precise and objective; the latter is fuzzier, often richer, but always subjective.

5. Both logical and psychological meanings of terms involve a process called *abstraction*. By this we refer to the taking out of some quality, trait, or characteristic and giving to it a name of its own. Roundness, hotness, and softness are examples of qualities found in many objects, but abstracted and given a special name.

As has already been noted in the quotation from Hull on page 280, any characteristic that occurs in more than one situation tends to dissociate itself from all of them. Thus in the words "fat," "bat," and "baby," the letter "a" tends to dissociate itself from its various contexts and stand off by itself. Why should this be the case? Perhaps the principles of grouping and wholes that we discussed in Chapter 9 may help us here. Elements tend to group themselves by similarity. Hence, if we write the three words one under the other thus: fat

bat

baby, the a's are seen as a unit—a new configuration in its own right. They tend to dissociate themselves from their own words because they tend to form a separate configuration by reason of the *similarity among them*.¹⁰

This is rather important because in teaching people to abstract roundness, justice, honesty, democracy, and so on, we do not intend that they shall forget the concrete experiences from which these qualities have been lifted. What we do want is to have the learner see the abstracted quality as embedded in the concrete instances, but distinguishable from these surroundings.

Heidbreder (19) found that concepts of concrete objects, such as face, bird, tree, were most easily attained. Next in order of ease were spatial forms and number concepts. In subsequent experiments Heidbreder and Overstreet (20) tried to explain this order by saying that concrete objects were more easily perceived as units than spatial forms or numbers. In other words, things have a strong structure or pattern, for they behave as units, and our action is largely with such unit-things. Commins and Fagin (1) point out that this squares quite well with the fact that children seem to learn nouns before other parts of speech, and that children seem to get to number concepts via perceptual activities involving concrete objects (21).

¹⁰ Of this we have indirect confirmation when we realize that even after we point out to the learner the common elements in a number of instances, it may still be some time before he really isolates them and treats them as separate namable things. The delay may be caused by the fact that isolated elements have not yet been formed into a pattern in which they are the figure and their contexts are the ground. That "a" is the common element may not be noticed if the words are written fat, bat, baby. But it would be difficult not to isolate the "a" if the words are written fAt, bAt, bAby.

What is inductive thinking?

This digression into the nature of concepts has been necessary because we think *with* concepts of one kind or another, and precise thinking requires carefully defined and shaped meanings. These are not the natural automatic products of experience. They are achieved through deliberate efforts to crystallize out of an experience or a class of experiences the qualities especially characteristic of them.

Practically all of modern mathematics and logic, as well as much of the thinking involved in physical science, is deductive. As we shall have occasion to note later in this chapter, there is a deductive phase in all problem-solving. But there is another phase of thinking, and it is no less important than deductive thought. We call this phase *induction*.

Induction is the process of thought whereby we are led from "x is true for a number of instances of a phenomenon" to assert that "x is true for all instances of the phenomenon." If, for example, we bite into five pears from one basket and find them all to be hard, we are tempted to infer that all the pears in this basket are hard—without any further biting.

Psychologically, our inductive thinking is guided by a growing feeling of certainty that future samples will be similar to the ones we have examined. Our desires for this certainty, together with a natural laziness, conspire to lead us into hasty generalizations. Logically, therefore, we have to guard against this tendency to generalize too quickly, to ignore instances that might upset our generalizations, and to leave out of account circumstances that might reveal these negative instances. The laws of induction are the barriers to such dangers, but only in so far as we choose to be logically careful.

When generalizations are used as substitutes for thinking, we tend to call them *stereotypes*. For example, it is easier to think of capitalists as all well-fed and wealthy than to take into account the many different capitalists, some of whom are neither very fat nor very wealthy.

Yet the possible and actual misuses of generalizations in life should not blind us to their potential usefulness. We could not think at all without generalizations. Of particular objects we can merely note the characteristics. This particular Russian (Ivan) is tall, dark, likes dark bread, and so on. But to think about Russians means to have something that can be said about Russians as a class.

What happens when we try to solve problems?

It may have occurred to you that, while you have on occasion thought associatively, deductively, and inductively, in real life these ways of thinking are so mixed up that you rarely are aware in which mental gear you are driving.

This is so because the solution of a real problem by thinking is a complex process that brings together all kinds of learning and experience. There is inductive, deductive, associative, and creative thinking. There is insight, conditioning, and trial and error. It is like the game on Saturday afternoon that brings together all the skills practiced separately during the week.

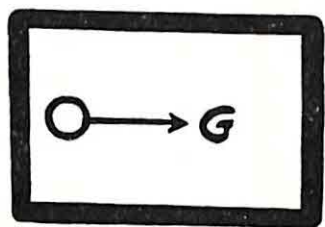


FIGURE 35

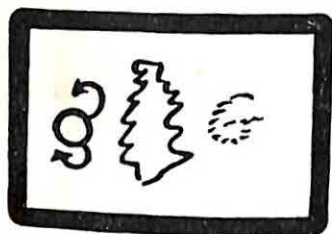


FIGURE 36

Seeking a goal. In Fig. 35 we have an organism in action straining toward some objective or goal (G). So long as this action is unimpeded, or so long as the organism can cope automatically or easily with each impediment as it arises, no thinking is necessary. For example, in driving an automobile, I have a definite notion as to where I hope to get, but this goal is not vivid in my mind. I am paying moderate attention to my movements, but for the most part I am concentrating on the state of the road and of traffic. I adjust almost automatically to changes in the traffic conditions. I do not have to think about these.

The barrier. In Fig. 36 the situation changes: a barrier or impediment arises to which I cannot adjust automatically. It may be that the engine sputters and dies out; or I may see a huge log in front of the car blocking the road; or it might be a prostrate body in front of the car. In this situation there is a fading out of the goal or objective from the focus of consciousness. I no longer think of where I am going, and the barrier or obstacle goes into the focus and becomes the dominant figure in my field.

There may be movements more or less relevant to the situation, such as pressing the accelerator or the starter to revive the sputtering car; or I may get out of the car and poke here and there. I stop the original flow of action and institute new but random actions.

The problem. If I now try to understand my predicament I have a "problem."¹¹ The situation must assume a "This is the sort of thing I am up against and what can I do about it?" quality before it can be called problematic. In other words, Thorndike's cat did not have a "problem" although Professor Thorndike, no doubt, believed that she was in a problematic situation.

In the problematic situation the goal reappears in the focus of attention and the barrier is put into relation with it. This relation is examined

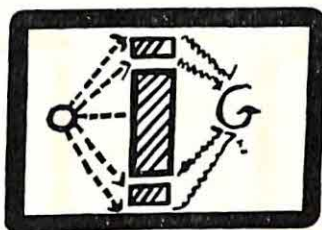


FIGURE 37

to find out just what it is that is blocking us (Fig. 37). Just what is it that has caused the engine to die down? Just what is the log doing there in the road? What is the nature of this prostrate form in front of the car? Why should one not just drive around it? This stage may be called the attempt to *define the problem*.

At first the images, thoughts, and feelings arise from past experience in no apparent order. One may think, as the engine refuses to revive: This is a fine thing to have happen. Why didn't So-and-so put in gas? Things like this always happen to me. Why don't they happen to So-and-so, who hasn't an honest bone in his body? Wouldn't you think there'd be a policeman around? I never liked this car anyway.

But then thought may take a more orderly turn—in the form of the question: What has made the car stop? And this leads in turn to the question: What *in general* makes cars stop?

¹¹ In some of the literature, any situation of frustration is called problematic. But the term "problematic" is better reserved for a frustrational situation which the subject is trying to *understand*.

Generalization. The latter question is a demand for generalization, that is, for knowledge about the working of cars in general. This knowledge may have been learned in school or it may have been picked up less formally in ordinary life.

Such generalizations might be:

Auto engines stop when there is no gas reaching the cylinders.

Auto engines stop when the ignition system fails to function.

Auto engines fail to work when lack of water has caused so much heat to generate within the cylinders that the metal parts fuse.

Behind these generalizations are others. For example, behind the gasoline generalization is the knowledge that automobile engines are internal-combustion engines using gasoline as a fuel. Naturally these are not spelled out letter for letter as I sit there in the automobile. Psychologically they just seem to rise to the occasion, so to speak, when needed. Or, to be more accurate, they sometimes do, for there are occasions when something we really know or have known does not rise to the occasion, so that when someone reminds us that we should have thought of So-and-so or such-and-such we feel irked for not having done so.

Be that as it may, there comes the time when we are ready to solve our problem. We are ready to say: The thing to do now is to find out which of the possible causes of engine failure is operating here. Or, if we symbolize each of the possible causes as $C_1, C_2, C_3 \dots C_n$, then our first task is to find out which one of these it might be.

Some of the problems cited at the opening of this topic were easily structured. Clearly the obstacle was the log in the middle of the road. But if the object in front of the car was a prostrate body, and if a preliminary investigation showed it to be a dead one, then the problem might be: What shall I do? Shall I notify the police, and possibly get involved in a messy affair, or shall I mind my own business and neglect my duty as a citizen?

Deduction. As each hypothesis or suggestion as to what our problem really is is examined, there follow from it *deductively* certain suggestions for the *solution* of the problem or for the verification of the hypotheses. For example, if we guess that lack of gas is the source of our trouble, then from the knowledge of how automobiles are made, we can *deduce* (a) the gas tank is empty, (b) the gas line is blocked, (c) the carburetor is not functioning.

We now *evaluate* these possibilities. If the tank was filled not more than a half hour ago, we shall dismiss one possibility—unless there is a

leak in the tank. If we know enough about the connections between the gas tank and the rest of the system, we can figure out how good the other guesses might be.

There are logical rules for estimating how probable a hypothesis (guess) is, but we are not studying logic at the moment. *Psychologically* the process can be described as a series of comparisons that the mind makes between the goal and the alternate routes that might get it there. At each step it relies on insights. One solution is seen as not fitting into a sequence that will get us to the goal; another is seen as fitting very well. There is mental trial and error, and all the while feelings produced in us by conditioning

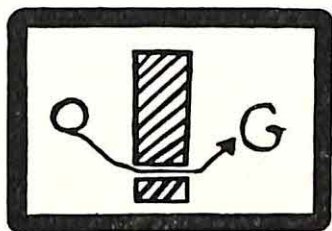


FIGURE 38

also play their part. Yet the whole process, complex as it is, is guided in a certain direction by the goal to be reached and by the barriers preventing us from reaching it.

Decision and verification. In Fig. 38 is represented the final stage of problem-solving. A decision is made in favor of one alternative. The decision should have been dictated by logic, but this is not always the case. I may, for example, fail to tell the police of a body in the road because my inveterate reading of mystery stories has made me unduly cautious about such situations. Or I may refuse to give due weight to the possibility of my having failed to fill the gas tank because it would reflect on my good sense more than I care to admit at the moment.

Once the decision is made, there is usually something to be done to change the offending situation. We pour in gas or call the police. This action helps to *confirm* or to *disconfirm* our whole train of reasoning. For if our reasoning was sound, our action would remove the obstacle or lead us past the barrier. If the action fails to do so, we are faced with the possibility that our reasoning has gone awry.¹²

¹² We shall not confuse "thinking" the right solution with "carrying" it out. We may have arrived by correct thinking at the solution: I need gas. But this does not produce a gas pump.

If our thinking is fruitful our problem is solved, and we confirm the truth of some of the generalizations we used in defining the problem, its causes, and its remedies. But we also confirm a brand-new hypothesis—at least it was new to us—the one that we thought would do the trick. This is learning by discovery, because we have not merely absorbed what others have found but we have also, in a sense, created what was to be learned.

What is creative thinking?

The account given of problem-solving, it may be objected, may be a fair account of what the scientist does in his quest for experimental truth and what we all do to solve practical difficulties. But what about the creativity of the painter, the poet, the musician?

The artist in creating is also solving a problem. But his problem is one of expression, or projecting in sensible (perceptible) form the way the world or a piece of it happens to look or sound to him at a particular time. The processes of trial and error, conditioning, and insight operate to give the artist tentative sketches, outlines, and so on.

Perhaps problem-solving in the arts is more applicable to the *means* used to overcome *technical* obstacles to expression. For example, an artist might regard the painting of twilight as a problem to be solved, or a playwright might regard the staging of a three-act play with only one shift of scenery as a problem to be solved.

If we can generalize from the somewhat unsystematic remarks artists have made about their own creative work, what seems to take place is a combination of insight and trial and error alternating fairly rapidly. One idea leads to another, and it is perceived as “right” or not. The work grows, therefore, and may end up a good distance away from the original intent of the artist.

What causes the artist to put down what he does put down? That, it is fairly certain, not even the artist can say. The psychologist is not of much help either. One can say that his past conditionings, his personality, his heredity, his training all have a finger in the final pie, but which finger is doing what it is difficult to say.

Obviously the material out of which pictures are made and songs composed comes from a storehouse of experience, but a very rich one. According to Lowes (22), *The Ancient Mariner* embodies elements

that Coleridge had experienced here and there throughout his lifetime.

Materials of experience and long practice in the skills of the craft seem to be two requisites for artistic creation. The learning of an artistic skill, presumably, is no different from learning any other skill. But using this skill to express an aesthetic insight demands that the artist first learn the attitude required for having such insight.

What is the aesthetic attitude?

We have seen that the impetus to learning is a barred goal. It has also been remarked that the *very way* we perceive the world is affected by needs and purposes. Even language was seen to acquire much of its meaning from the common use to which objects of ordinary life are put.

Perceiving an object in terms of its usefulness for something else is what is meant by the practical attitude. Much has already been said about this and the aesthetic attitude in Chapter 7. Here it is necessary only to repeat that, although all of us are born with the ability to perceive the object in terms of its color, sound, smell, flavor, and the way these are combined in a particular pattern, this capacity is in perpetual peril. The practical attitude is so urgent that only at odd moments or through deliberate effort can we see or hear objects, not as signs of something useful or harmful, expedient, or foolish but as something to be seen, heard, and felt for their own sakes (23).

The aesthetic attitude is a peculiar combination of ego-involvement and ego-detachment. To take and maintain the aesthetic attitude toward, let us say, a tall, old, straight pine tree standing alone on a hill, it is necessary, first of all, to project onto it certain sensations. It looks as if it were *stretching* to heaven, *resisting* the gusts of the gale, *overlooking* the valley. It is we who are stretching, resisting, overlooking, of course, but the pine tree looks as if it were doing all these things. This projecting has been called empathy (24).

But, oddly enough, the moment we recognize or even suspect that we are projecting ourselves into the appearance of the tree we lose the aesthetic attitude. We have, therefore, to maintain what Bullough (25) called "psychical distance," that is, to keep ourselves out of the object even though we project ourselves upon it. To maintain the aesthetic attitude toward a movie, we have to see the heroine as noble and the villain

as dastardly, but we must not so far forget ourselves as to leap from our seats and rush to the aid of the heroine (26).

How this capacity is to be cultivated is not properly our concern, except to point out that the reinforcement used should be that of the aesthetic enjoyment. Or, put more bluntly, we learn to assume the aesthetic attitude best when we enjoy the result of doing so because of what happens to us aesthetically, rather than socially, economically, ethically, or any other way.

What is the role of language in creativity?

The nature of language is such that once it is mastered there is the possibility of creating new patterns of experience by combining concepts in new combinations. For example, the notion "uneasy" is not the one we usually associate with the notion of "clouds," but there is nothing to prevent my combining them into the line: Uneasy clouds in a placid sky, just as there was nothing to prevent ancient peoples from joining the trunk of a man to that of a horse and calling it a centaur.

Words free man from the limitations of actuality. They enable the human spirit to explore the realm of what might have been and what might still be. All our goals, purposes, ideals, and values are made up, in the last analysis, of these imaginative manipulations of symbols. Some of these imaginary constructs will remain nothing more than that. They are idle dreams or fancies serving at best as escape from a reality that has not yielded to our wishes.

On the other hand, a few of these constructions are the happy shots of mankind—the inventions, the discoveries, the poetry, the literature, the great ideas of the race. Without symbols, they would be impossible, and if the symbols were physically welded to the things they signified, this creativity would be impossible.

Thus language is the basis of both *sociality* and *individuality*. Concepts bind us to our groups, for they ensure uniformity in the way we name and use things. Nevertheless, every concept is tinged for each one of us with the circumstances of its birth and use. To me the term "dogs" refers not only to four-legged animals who bark and sometimes bite, but to a particular dog who once bit a person I thoroughly disliked. To someone else the word "dog" conjures up visions of a faithful friend and companion.

And the way we put concepts together can reflect the habits and expect-

tations of our group or it can reflect our individual way of perceiving the world. Of the two, the group factor in language is the more basic because even to be creative in or through language would be impossible unless the core meanings of our concepts were held in common.

Can learning be creative?

If we cannot specify in detail just how creativity gets created, we can point to the fact that not all human learning is a simple absorption of what is already there waiting to be learned. It is true that a vast proportion of our behavior is so learned because most of our predicaments are forced upon us. It is easy, therefore, to overlook the fact that new combinations of experience are being created every moment by the minds of men as they solve problems scientifically or express their own unique apprehensions of the world in the arts.

If, by conditioning and trial and error we are pushed and pulled into a rough conformity with the conditions of life, then by thought and creativity we are nudged into new possibilities of experience. We cannot explain the vast proliferation of human experience from simple, direct biological urges into its complex and subtle forms without taking into account the ground-breaking creativity of human thought. Men do more than take in each other's washing; occasionally they make a few new clothes.

SUMMARY

In this chapter we noted that learning by conditioning covers a goodly proportion of our learnings. Language and well-established habits, especially emotional ones, seem to be established in this way.

Learning by trial and error seems to describe the way we master most of our motor skills and the way we get out of many of our predicaments. In this type of learning a high emphasis is placed on reinforcement of the "random" response that turns out to be successful.

Learning by insight seems a peculiarly apt description of the way we comprehend relationships of all kinds—perceptual and conceptual.

Learning by thinking and discovery stresses the notion that we learn by actively manipulating the elements of our experience as well as by acquiring them.

Hence we first analyzed the associative, autistic, deductive, and inductive modes of thinking (passing from one element of experience to another) and then tried to see how they operated in problem-solving and creative expression.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: To compare two theories of learning

Assignment: Read H. E. Garrett, *Great Experiments in Psychology* (3rd ed.; New York: Appleton-Century-Crofts, 1951), Chaps. 3 and 4, pp. 40-81.

Questions for Class Discussion

1. Describe briefly the apparatus used by Thorndike in his experiments with fish, chicks, and cats.
2. To what did Thorndike credit the rapid learning of his monkeys?
3. Describe briefly Köhler's experiments with chicks and chimpanzees.
4. How does Köhler explain the sudden learnings of his subjects?
5. In your own experience, which kinds of learning seem better described by Thorndike? by Köhler?

PROJECT II

Topic: The process of conditioning

Assignment: Read Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart and Co., 1949), Chap. 16.

Questions for Class Discussion

1. How does the Reynolds experiment answer the question: Does the amount of time between the onset of the conditioned and unconditioned stimulus make any difference in the efficiency of conditioning?
2. Explain and illustrate stimulus generalization.
3. How does Humphrey's experiment illustrate experimental extinction?
4. Explain the difference between classical and experimental conditioning.

PROJECT III

Topic: Learning through reasoning

Assignment: Read Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart and Co., 1949), Chap. 19.

Questions for Class Discussion

1. Does this chapter support or deny the claim that reasoning differentiates man from the lower animal forms? Why?
2. Which of the ways of learning described in the text is best illustrated by Ruger's study?
3. Summarize Maier's experiments and their results.
4. What did Köhler discover about the ability of one chimpanzee to "imitate" another?
5. Explain and illustrate the notion of a "delayed response."

RECOMMENDED READINGS

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- KINGSLEY, H. L. *The Nature and Conditions of Human Learning*. New York: Prentice-Hall, 1946, Chap. 4 on trial and error learning.
- NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. *Forty-First Yearbook*: 1942, Pt. II, The Psychology of Learning. Chaps. by G. W. HARTMANN and KURT LEWIN on field theory of learning.
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II. *On Thinking and Problem-Solving*

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- VINACKE W. EDGAR. *The Psychology of Thinking*. New York: McGraw-Hill Book Co., 1952.
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Part IV

THE STRUCTURE AND DYNAMICS OF PERSONALITY

How the human organism develops his behavior has been considered in our discussion up to now. Yet, all that we have discussed still does not explain human behavior as it must be explained. The human organism is unique, it has a personality, it is an "I."

This "I" acts, responds, and behaves. It responds because it must satisfy its needs and desires; it must meet these demands in a manner that will both fulfill the demands of the Self and the society of which the Self is an integral part. Our task will now require us to investigate the problem of how and why the personality is able to integrate these demands and to respond in a manner appropriate to them. Because the Self does not exist in a vacuum, but is developed and maintained in a social environment, the place of the culture assumes increasing importance. Because, too, the behavior of the Self can be abnormal as well as normal, we should spend some time in the consideration of the symptoms and conditions of abnormality, and, finally, we shall attempt to present a concept of the healthy personality. Without such a concept our efforts to understand human behavior would lose much of their significance.

Depth Psychology

FREUD AND THE PSYCHOANALYTIC SCHOOL

How was abnormality viewed in the past?
What is depth psychology?
How did Freud become interested in mental phenomena?
What part does repression play?
What did Freud mean by infant sexuality?
Is there an Oedipus complex?

FREUD'S THEORY OF THE MIND

What is the place of the id, the ego, and the superego?
How important is the unconscious?
Do our dreams have meaning?
What disguises are employed by the dreamer?
Is there a psychological basis for wit?

NEUROSIS AND PSYCHOANALYSIS

What defenses are made by the ego?
How does psychoanalysis relieve neurosis?
What is the present position of psychoanalysis?
Are all psychoanalysts in agreement today?

A YOUNG MAN is very much disturbed. An angry voice has been berating him, warning him to destroy the wicked godless who would deny that the day of judgment is close at hand. Even now may be too late! The young man loads his shotgun, walks out on the busy city street, and kills six persons before the police can overpower him.

Obviously this young man is not normal. We call him insane or *psychotic*, the latter term being preferred by psychologists to describe that person who has completely lost touch with reality and who is, in most cases, confined to a mental hospital. Such an individual is so confused that he cannot think clearly; he lacks perspective, and is unable to determine right from wrong. It is estimated that there are a million psychotics in the United States today. A goodly number are potentially as dangerous as this young man, but the majority are relatively harmless to others.

A young woman claims she has a serious physical illness but is unable to describe the symptoms to the doctor. She reads everything she can find about diseases and believes that she is suffering from most of them. Another woman is so fearful of being caught in a crowd that she refuses to leave her apartment and has all her food delivered on the dumb-waiter. Two brothers, who are quite rich, have lived for years in their boarded-up mansion amid indescribable filth and litter which they are saving against the day when they will need the accumulated debris. An eight-year-old boy experiences severe attacks of asthma because he thinks his parents do not love him. A college girl would accept a date for the evening, but an hour before the time set she would become filled with such anxiety about going that her mother would have to tell the escort that she could not go. A soldier, apparently in good physical condition, suddenly develops a paralyzed arm and has to be removed from his contingent to a base hospital.

All these cases are classified as *neurotic*. While these people are not actually psychotic, they are filled with anxieties. They are chronically unhappy and distressed and exhibit such queer behavior that they cannot be said to be normal. It is estimated that there are more than eight million neurotics in America at the present time.

FREUD AND THE PSYCHOANALYTIC SCHOOL

Is anyone normal? Freud doubted if one could make this claim in a literal sense. Since every person has certain habits and traits which set him apart from all others, normality is often thought of as a matter of degree, a point on a scale that characterizes the behavior of the majority. Thus the normal person is considered to be "well-adjusted" if his behavior does not deviate significantly enough to cause surprise or alarm.

How was abnormality viewed in the past?

We know from what recorded ancient history there is that abnormality was ever a part of man's lot. Primitive man was evidently just as confused and terrified by mental disorders as he was by the storms and other frightening aspects of his natural environment. He explained the diseases of the mind as he did other troublesome phenomena, by blaming them on the elements. In time mental illness became associated with the gods and evil spirits. Since mental disorders were supposed to be supernatural in origin, treatment too often was only a matter of punishment for the afflicted persons. This way of viewing mental disturbances continued with few dissenters even up to the times of the Salem witch trials in America. We read of many instances where witches were burned because they were "marked by the Devil's claw," and scientific thinking about mental disease was generally obscured by superstition and sometimes by theological persecution. As a result, progress has been relatively slow in the development of knowledge about the whole subject of abnormality.

However, some attempts were made to explain and treat mental disease as a medical problem. As far back as 460 B.C., Hippocrates began to investigate the causes of abnormal behavior and studied the brain in connection with mental disorders. Plato, too, advised that mental patients should be humanely treated, and certain Roman physicians such as Asclepiades and, later, Galen continued the work begun by Hippocrates. Durant (1) tells us that asylums to care for the insane were found in all the principal cities of Islam in the thirteenth century.

The theory of Hippocrates, that bile was responsible for mental disorders, was accepted by Aristotle. Bile, for instance, was thought by him to be responsible for a person's wanting to kill himself. This was part of the humoral theory, which regarded body fluids as the bearers of all diseases.

In medieval Europe the monasteries were used as asylums, at least for the more mildly disturbed patients. Although the treatment was much more religious than medical, the people at least were treated kindly. Later this was replaced by what amounted to sheer persecution, by Catholics and Protestants alike. Witchcraft and abnormality were considered the same thing.

It was not until the nineteenth century that medicine made any real strides in seeking the causes of abnormality. Mesmer had experimented

with hypnotism and created quite a stir. The succeeding attempts were mainly studies concerning the organic nature of mental disorders, and work was undertaken on the brain so that more would be known about the origins of mental disturbance. These efforts were to some extent successful, but many cases could not be traced to organic causes. This led to a belief that psychological reasons were at the root of such illnesses. Charcot and Janet, in particular, subscribed to this theory and their work furthered the interest in the subject. Kraepelin compiled the first real classification of mental diseases, and described the symptoms of dementia praecox, later called schizophrenia, and other psychoses.

Since the beginning of the twentieth century psychiatry has made great progress. Many mental hospitals have been built, more and more psychiatrists have been trained, and numerous campaigns have been started to make people more aware of the whole problem of abnormality.

What is depth psychology?

The psychoanalytic school, started by Freud, has investigated the problem of abnormality more intensively than any other school of psychology. It has been called *depth* psychology because it attempts to disclose the part played by the unconscious mental processes of an individual in his behavior.

If there is anything you do not understand in human life, consult the works of Dr. Freud.—SHERWOOD ANDERSON

Sigmund Freud was born in 1856 in what is now Czechoslovakia, but lived nearly all his life in Vienna; he died in London in 1939. He has been called "the most brilliant of modern psychologists," compared with Newton, Darwin, and Einstein as a scientific genius by his adherents, and called just about everything else from completely unscientific and utterly fantastic to "a dirty-minded old man" by his opponents. Whatever may be the final estimate of his worth, there apparently is little doubt that his writings have made a larger single impact on twentieth-century psychology and literature than those of any other person to date. We are told that in the decade 1910-1920 more than two hundred books were written on Freudianism. Newspapers were filled with accounts of his ideas, scientific articles accepted or disputed his theories, and novelists and dramatists wove many of his concepts into their plots and character motivations.

How did Freud become interested in mental phenomena?

This young medical doctor developed an interest in psychology while a student under Ernst Brücke. According to his friend and biographer Ernest Jones, Freud, like most scientists of his day, was an empiricist in his philosophical beliefs and had incorporated in his own thinking of what the mind was like many of the ideas of the philosopher Herbart (2). He felt that mental processes strove for "equilibrium or constancy" and that the goal of this striving was the maintaining of a level of tension characteristic of the organism, rather than the abolishing of all tension (3). Pierre Janet had been studying this problem and believed that organisms possessed differing amounts of mental energy, which permitted the organism to withstand stress and to adjust to the demands of living. When the energy level was not up to par, evidences of the inability to meet these demands would begin to appear in the form of various mental disorders.

Freud was of the conviction that when too much mental energy was used up by the organism in an inner struggle, sufficient energy would not remain to carry out the other demands of life and the organism would become exhausted and suffer as a result. Freud, accordingly, used the term "psycho-economics" to explain this distribution of available energy.

Although Freud's initial medical training and concern had been in the field of neurology, he journeyed to Paris to study the disorder known as hysteria under the famous Charcot. Using hypnosis in his treatment of hysteria, Charcot demonstrated that its symptoms were psychogenic in origin, that is, the result of inner emotional disturbances, and Freud was deeply impressed. Returning to Vienna in 1887, he sought to treat hysterical patients by this method of hypnotic suggestion, something which most physicians of the time regarded as mere quackery. Freud found that he could not always employ hypnosis because he could not induce it sufficiently in many of his cases, and while some of his patients responded to suggestions made under hypnosis and got rid of their hysterical symptoms, he was not satisfied with the method as a therapy. He continued to experiment and in 1895 with Josef Breuer he published *Studies in Hysteria*, consisting primarily of five case histories. Because of the book's originality, it attracted considerable notice, not all favorable.

What part does repression play?

Freud gradually replaced hypnosis with "free association" in his treatment of patients, and this was to become the basic component of Freud's famous method of psychoanalysis, a term first used in 1896. Jones says that adopting free association, that is, letting the mind go in "apparently blind and uncontrolled meandering," was the most decisive step undertaken by Freud. These wandering associations were considered by Freud as not accidental and tremendously important. When a patient "resisted" in disclosing his memories, Freud believed that the memories were painful and that the patient wished to forget them. He called this "repression." Since this was an unconscious process, psychoanalysis became a method for reaching into the unconscious layers of the mind so that the repressed material could be brought into consciousness.

But what material is most often repressed? Freud found that sexual experiences were usually repressed, something that at first astounded him and which he did not take too seriously. However, the more he continued with his work the more he became convinced that sexuality was at the very core of neurosis. Breuer was unwilling to go along with Freud in the investigation of the sexual life of patients, so the two men fell into disagreement. Freud kept on with the hypothesis, and formulated his ideas of "anxiety neurosis," where neurotic symptoms are substitute satisfactions of a sexual impulse or ways to prevent these satisfactions. These studies caused Freud to conceive his theory of "infant sexuality," perhaps the most significant of all his theories and one fundamental to his psychology.

What did Freud mean by infant sexuality?

Sex does not begin at puberty but shortly after birth. This statement of Freud's has achieved almost universal acceptance in psychology. However, somewhat less acceptance has been given his interpretation of sex in children, as expressed in his theory of infant sexuality.

According to Freud, sexuality is a broad term, meaning the obtaining of pleasure from various zones of the body. The infant seeks this pleasure, at first from his mouth, later from the anus and the genitals. Sucking activity is employed by the young child not only to obtain nourishment but also to find pleasure. Both activities are called sexual and represent the oral stage of development. As certain destructive impulses develop along

with oral activity, for example, biting, this development leads into the *sadistic-anal* phase. Here the child experiences aggression and pleasure from the act of excretion, and often seeks to prolong the pleasure by withholding his bowel eliminations. Undue interference or deprivation in either of these phases can result in what are called oral or anal characters in later life. The heavy smoker is an oral character, the miser is an anal character.

The next is the *phallic* phase of development, with the pleasure interest shifting to the genitals. During his fourth or fifth year the boy experiences a fantasy of castration anxiety about the loss of his genitals, and the girl learns to her dismay that she lacks the male genital organ and feels inferior and envious as the result.

Is there an Oedipus complex?

It is during this phase that the *Oedipus complex* arises. As the boy grows he develops an "erotic" love for his mother and begins to view his father as a great rival in this love. It is not uncommon for the boy to declare that he wants to marry his mother. To a lesser degree, the girl loves the mother but, since the father usually gives her more love and affection, she develops an "erotic" love for him and would like to take the mother's place in his affections. Later, both sexes normally abandon the Oedipus complex in the face of reality or threats and, after a slowing up of sex in the *latency* period, the child reaches the *genital* phase of puberty, where the sexual instinct is capable of fulfilling procreation.

It was during the analysis of his own unconscious mind that Freud conceived the idea of the Oedipus complex, because he discovered his own passion for his mother and his concurrent jealousy of his father. He concluded that the complex was universal in all children. The term "Oedipus complex" was borrowed by Freud from the ancient Greek tragedy of King Oedipus, who unwittingly killed his father and married his mother.

Jones adds an interesting comment about Freud's great respect for what is called "the singular fact." Claiming that this trait is extremely rare, he says that when Freud found "in himself previously unknown attitudes towards his parents, he felt immediately that they were not peculiar to himself and that he had discovered something about human nature in general" (4).

FREUD'S THEORY OF THE MIND

What is the place of the id, the ego, and the superego?

The oldest part of the mind is the *id*. It contains everything that is inherited, all the basic appetites and desires as well as the instincts. The sole aim of the *id* is satisfaction, which means that it obeys the *pleasure principle* and in that sense is undisciplined. As we have seen, the term

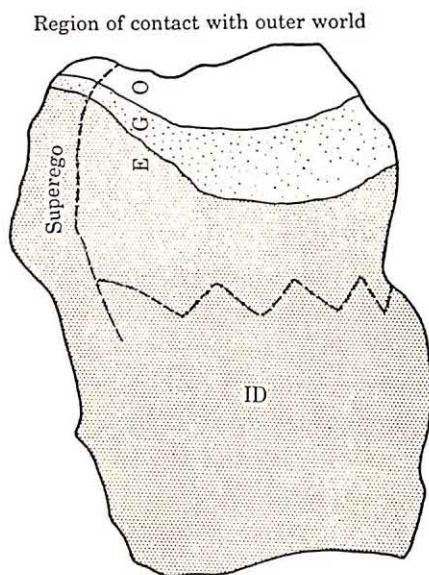


FIGURE 39

A FREUDIAN DEPICTION OF THE CONSCIOUS AND UNCONSCIOUS. The small white portion represents the conscious, the less shaded portion the preconscious, and the more shaded part the unconscious. The *id* is entirely unconscious, and much of both the *ego* and *superego* is also. [From W. Healy, A. F. Bronner, and A. M. Bowers, *The Structure and Meaning of Psychoanalysis* (New York: Alfred A. Knopf, Inc., 1931).]

"instinct" is a debatable one in psychology, and it was a problem also to Freud. Fundamentally, said Freud, there are two main instincts, the *Eros*, or life instinct, and the *Arakne*, or death instinct. Since the life instinct seeks to preserve life, it can be called sexual, while the death instinct aims at the destruction of the organism. Man's life is, therefore, a continual struggle between these instincts. The energy of the *Eros* is called *libido*.

The ancient philosopher Empedocles had entertained a similar idea about life, although he did not label these instincts as Freud did.

The *ego* is that part of the mind which seeks to preserve the organism and acts as an intermediary between the id and the external world. Hence it is a protector for the organism in the conflict between pleasure and reality. It seeks to gain control over the impulses and demands of the id, not for moral reasons but because complete fulfillment of these demands would result in injury to the organism itself, and while the ego wants satisfaction, it learns to modify or avoid many demands which are real or imagined dangers to meeting reality. Freud placed the greatest importance on the role of the ego.

The *superego* is the last development of the mind, and roughly represents conscience. It is built up from the demands of others—parents, teachers, and the like—and it can punish the organism severely by changing the anxiety felt by the ego into feelings of guilt. Thus the superego insists that the individual conform to moral demands and will not hesitate to punish when these are challenged or disregarded. Stealing or sexual misbehavior can bring both punishment by others and qualms of conscience. Freud said that the id and superego have one thing in common, they represent the influences of the past, of heredity, and what has been taken over from others. When an acceptable equilibrium has been established among these three regions of the mind, the personality is considered to be normal.

How important is the unconscious?

Since ancient times consciousness and unconsciousness have been major issues for discussion for philosophers and psychologists. It remained for Freud, however, to stress the importance of the unconscious in man's behavior, and after reading his theories people began to learn that their unconscious minds motivated their actions in strange ways, often to their detriment. Freud considered consciousness as merely "a very highly fugitive condition" lasting for only a moment. The unconscious is much more important. Consequently, repression becomes of prime import in explaining behavior.

The unconscious contains all that is denied admission to consciousness and, as Freud said, "quite as unknown to us as is the reality of the outer world." It cannot be made conscious voluntarily. Completely uninhibited,

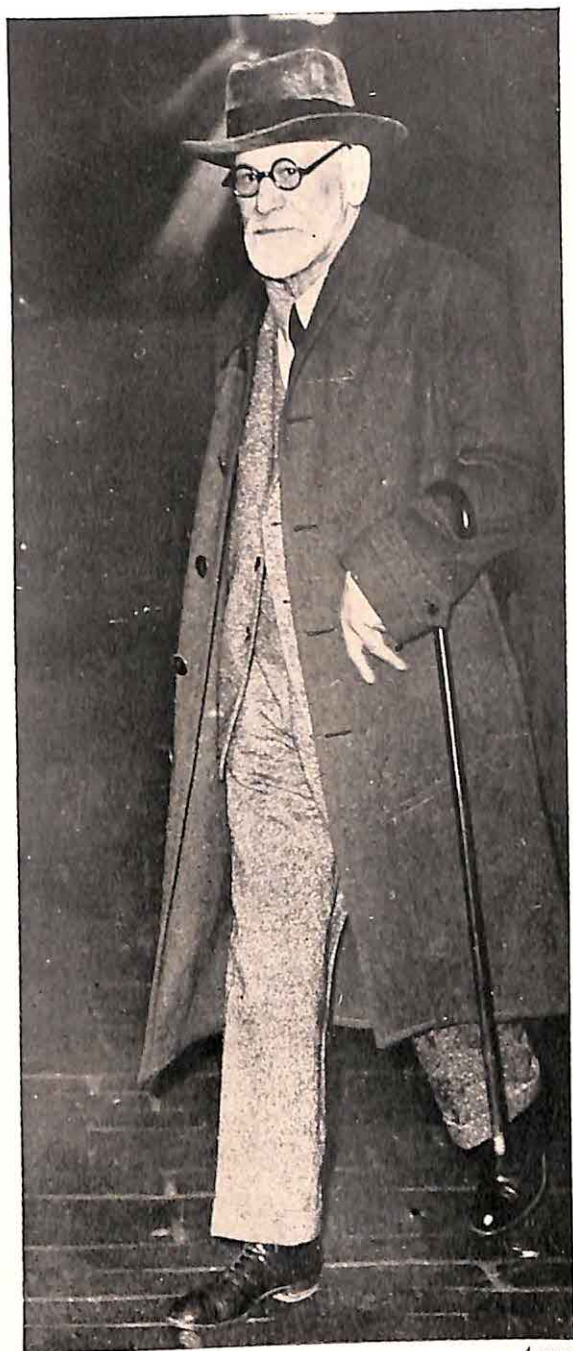
it demands only the fulfillment of wishes. We can think of it as a large room, filled with mental stimuli and impulses which seek to have themselves admitted into a smaller room of consciousness, but the entry is guarded by a censor. When this censor forbids their entrance, we say that the excitations have been repressed, but since they are actually psychic energies they continue to exist in some form. Therefore, these unconscious impulses continue to seek expression.

But there is still another room between the unconscious and the conscious, and this is called the *preconscious*. In this is contained all that "is capable of entering consciousness" or, in other words, that which is only temporarily unconscious and, for the most part, only waits to become conscious. While both the preconscious and the unconscious can be made conscious, it is much more difficult a task for the unconscious to accomplish this aim. In terms of the regions of the mind, the id is unconscious; the preconscious contains most of the ego but not all of it. Therefore, every mental act is first unconscious and must pass the censor guarding the preconscious or it remains repressed. But before it can become conscious it must also pass the censor guarding the door from the preconscious to the conscious. Whether it gets into consciousness, then, depends on the resistance it meets from the censors, but whether it gets into consciousness or not it persists, producing in the mind its effects.

Do our dreams have meaning?

People have always believed that dreams had significance. The ancients thought that dreaming was the work of either the gods or the devils. Seers and soothsayers relied on dreams to some extent to foretell the future. Both Plato and Aristotle sought to explain dreams, and Caesar's wife had a fateful dream about the ides of March. Even today dream books have some sale. Forecasting the future, however, has never been accomplished by man with any accuracy, and dreams have not aided in that direction.

When we try to remember a dream we seem to be hopelessly lost in confusion. The dream appears to be a jumbled mass of illogical nonsense, filled with persons dimly recognized and events which are not only distorted in time but also removed from actuality. Sometimes our dream may be explained by external causes; for instance, we dream of being lost in a blizzard and we awake to find that the cold night air has been blowing on our uncovered body. We may have eaten a heavy meal just before retiring



Acme

ILLUSTRATION 20

Sigmund Freud, founder of psychoanalysis



TIMIDITY

ILLUSTRATION 21

The artist, Artzybasheff, pictures here two common psychoneuroses.

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REPPRESSED HOSTILITY

and the unpleasant dream that follows may be understood as the result, but for most of our dreams these conditions would not seem to hold.

In 1900, Freud published his book *The Interpretation of Dreams*, which has become a classic work and the best known of his books. Here he says that "the dream is the royal road to the unconscious." The main point in this work is that dreams are always *wish-fulfillments*, that is, expressions of wishes which, though repressed, are struggling to regain their place in consciousness. Even though the dream may appear to be jumbled and confused and lacking any sense, it actually has both meaning and a psychological structure. Why have the wishes been repressed? Because they are desires that seek satisfaction of instinctual impulses (sex, hate, hostility, incest, even murder), and to which the censor cannot allow conscious expression. Since we are able to remember much more in our dreams than we can recall in our waking hours, dreams can resurrect long-forgotten incidents, even from the time of early childhood. They can also bring forth things that are part of our archaic heritage, that is, the experiences of our ancestors and the myths and symbolisms of the universal past.

The dream that we actually dream is called the *manifest* dream, or dream-content; behind this dream lies the *latent* dream-work, which contains the real reason and meaning of the dream. The latent dream is the one that must be uncovered if the dream is to be understood. However, "the dream is the guardian of sleep," and since the ego wants to maintain sleep, it replaces the instinctual demand by a wish. If one is hungry, instead of awakening and securing a meal, one can satisfy the demand by dreaming of the meal and so continue in sleep. Sometimes this method does not work, and we awake, perhaps because of the dream itself. An anxiety dream such as a nightmare frequently awakens us.

It is often the case then that the repressed wish may be so severe or unethical that the dreamer would awaken if it were permitted to enter consciousness. Therefore, disguises are necessary for the sleep to be continued and at the same time to deceive the moral censor (*superego*). Numerous disguises are available to the dreamer, such as condensation, displacement, and the use of symbols.

What disguises are employed by the dreamer?

Condensation takes place by having a single element of the manifest dream stand for a larger number of elements of latent dream-thoughts. Freud once dreamed of a "botanical monograph" which he had written.

The single word "botanical" had for him many associations: the recollection of a Professor Gärtner (in German Gärtner means gardener), of a patient named Flora, of his favorite "flower," an artichoke, which in turn suggested a remembrance of Italy, of his hobbies, and other things. He declares that every element in the dream-content appears several times in the dream-thoughts.

Likewise, the combining of two persons into one person in a dream may be an attempt to evade the censor by representing something both have in common, yet avoiding the representation of this common feature directly (" 'A is ill-disposed towards me, and so is B,' I make, in my dream, a composite picture of A and B; . . . both A and B justifies my inserting that which is common to both persons—their hostility towards me") (5). The composition serves to get around the representation of this common feature.

Displacement occurs in dreams when an element in the manifest dream which is of no importance to the dream-thought seems to be the clearest part of the manifest dream, or vice versa. In the dream about "botanical" the dream-thoughts are really concerned with conflicts between colleagues and with the reproach of Freud for sacrificing too much of his time to his hobbies, not with botany as such.

It is evident that the dream process is so complex that any interpretation must be very exacting and must require a thorough understanding of every element involved. Such devices explain why our dreams appear to us to be very short, yet require considerable time and length for their explanation. Even the most insignificant words or details in the dream, says Freud, are important in the interpretation.

While *symbolism* is not necessarily present in dreams, it plays a prominent part in many dreams. The number of symbols is limited, but they have a universal meaning. A house, for example, is a symbol for the human body; children are little animals or vermin; birth is identified with water; death is symbolized by setting out on a journey or on a train. Many, if not most, symbols are sexual ones. This universality of symbol meaning has caused heated discussion among psychologists, and by no means finds common acceptance. Erich Fromm, for instance, writes that we have to distinguish between kinds of symbols. There are accidental symbols, which are entirely personal; conventional symbols, which are restricted to a group of the same convention; and universal symbols, which are shared by all men. Some symbols differ in meaning because of

different cultures, for example, the sun is held to be dangerous in the tropics but welcomed in northern countries. Freud's symbols express only "certain primitive instinctual desires," which, declares Fromm, is too narrow a conception (6).

In the unconscious, the region from which dreams arise, logic has no place, time has no meaning, contraries are looked upon as identicals, "no" does not exist, all dreams are related to the dreamer, and every dream has some reference to an event in the preceding day "on which one has not slept." The last may not be the most important part of the dream, but it is there. Freud also held that daydreams were wish fulfillments, "products of frustration and desire."

Probably the best literary account of the Freudian dream theory is the novel *Finnegans Wake* by the Irish writer James Joyce. Most of the disguise devices are seen in the work. H. C. Earwicker, the dreamer, is a tavernkeeper. However, he is also Woden, Thor, St. Patrick, Strongbow, Cromwell, and other well-known personages. This is saying that he is the "composite" person. Shakespeare can be Shaggspick and Shakhisbeard, since Freud thought of wit as a kind of condensation. The past is interwoven with the present. Earwicker, who has been detected in "peeping" at some girls in a park, is plagued by this throughout his life. The park obviously is the Garden of Eden, and the crime is original sin. Here is symbolism. It is from such material that Joyce interprets the dream of his main character quite in keeping with Freud's latent dream-thoughts. Of such strange stuff are dreams made!

Is there a psychological basis for wit?

Freud must have had a good sense of humor; at least he was interested enough in the subject to write extensively about it. We shall examine a few of his ideas about the "technique of wit," quoting a joke here and there which he employs to illustrate a point. He finds considerable similarity between dreams and wit, in that many of the dream devices are also found in jokes.

Condensation, for example, is an important part of wit, especially "condensation with substitution." He illustrates this by the following: "Disraeli once remarked that old persons are apt to fall into 'anecdote'" (7). Of course the key word is composed of the condensation of two words "anecdote" and "dotage." Play on words or double meaning also

is a form of wit. "A physician, leaving the sick-bed of a wife, whose husband accompanied him, exclaimed doubtfully: 'I do not like her looks.' 'I have not liked her looks for a long time' was the quick rejoinder of the husband" (8). The double-meaning joke often uses ambiguity to assist in the transition of meaning, and frequently this is ambiguous in a sexual sense. Many obscene and risqué stories fall into this category.

Puns are called the lowest form of wit, and are composed of two words with meanings that closely resemble each other. "It is related that some students, wishing to play a trick on Agassiz, the great naturalist, constructed an insect made up of parts taken from different bugs and sent it to him with the question, 'What kind of a bug is this?' His answer was 'Humbug' " (9).

Another dream technique found in wit is displacement. "Two Jews meet near a bathing establishment. 'Have you taken a bath?' asked one. 'How is that?' replies the other. 'Is one missing?' " (10). The emphasis from "to bathe" to "to take" has been displaced.

Faulty thinking can be witty. "A gentleman entered a shop and ordered a fancy cake, which, however, he soon returned, asking for some liqueur in its stead. He drank the liqueur, and was about to leave without paying for it. The shopkeeper held him back. 'What do you want of me?' he asked. 'Please pay for the liqueur,' said the shopkeeper. 'But I have given you the fancy cake for it.' 'Yes, but you have not paid for that either.' 'Well, neither have I eaten it' " (11).

Freud proceeds to give other techniques in explaining the psychic processes in wit, but time does not permit their illustration here. That he believed wit was related to the unconscious is evident from the title of his work; that the unconscious must have some connection with humor seems apparent, since jokes about psychiatrists are quite common today.

NEUROSIS AND PSYCHOANALYSIS

We have seen that it is a Freudian contention that repression can prevent unpleasant and painful ideas from becoming conscious, but they continue to remain in the unconscious to disturb the individual. If this becomes severe enough, neurotic symptoms will develop. Thus neurosis represents a mental conflict. The symptoms of neurosis are many and varied, but generally include such reactions as fatigue, feelings of inadequacy, of being rejected by others, sexual inferiorities, and many physical

symptoms such as headaches, diarrhea, constipation, ulcers, paralyses, and the like. The neurotic is classified as compulsive, obsessive, hysteric, neurasthenic, or as being filled with a free-floating anxiety. Many writers also believe that alcoholics and criminals are basically neurotic personalities. We shall take these various classifications up in more detail in Chapter 13.

Repression, a basic concept for the Freudians, is of two kinds: it may deny to consciousness some archaic or primitive idea of an instinct which is not acceptable to the ego or it may push from consciousness those things that have somehow or other become associated with the previous kind of repressed material. Because this process is an active one, there is constant expenditure of energy by the organism in repression.

At first Freud concluded that sexual traumatic incidents, accidental sexual experiences that happened during the early childhood of the person, were the cause of adult neurosis. Later he decided that this assumption was not warranted, and declared that it was not a sexual experience that took place during infancy which ultimately resulted in the neurosis, but that the person who has experienced such an incident *represses* his manifestations of infantile sexuality. Unwilling to face the experience, it is deposited in the unconscious by the person, and there it remains but strives to regain some conscious expression. For example, a boy may have the wish that his father would die, but since such a thought would cause him great anxiety and guilt feelings, he represses it at once from consciousness. In the same manner sexual desires are repressed.

Freudians are convinced that a neurotic conflict takes place between the id and the ego (12). The ego seeks to ward off impulses by repression, although the superego may complicate matters by joining either ego or id in the conflict. The place of guilt feelings may represent the anxiety of the ego toward the superego. Thus, as Fenichel says (13), in the conflict an instinctual drive "seeks discharge in a struggle against an opposing anxiety."

What defenses are made by the ego?

Some ego defenses are successful, others are not. In addition to the usually present repression we have just mentioned, Freud laid great emphasis on the defense of *sublimation*, where a sexual instinct is changed to find satisfaction in something which is not sexual and has a good social

evaluation. The familiar example of sublimating sex in athletic activity will serve to illustrate this concept. Some form of repression by the ego has taken place, plus a substitution or identification of the now desexualized original aim (see Chap. 7).

Projection. This defense is made by the ego when it sees an offensive impulse as being in another person, not in itself. An example of projection would be the criminal who says that society has treated him badly by locking him in jail. By this method he "projects" his feelings on others and thereby seeks to excuse his own behavior.

Introjection. Here the ego incorporates values of others or an object as its own; it is a kind of identification with something else. In Chapter 14 we shall describe this in more detail, as it frequently appears in the formation of one's attitudes.

Reaction formation. Here instinctual impulses are denied by the holding to rigid attitudes that are opposed to the impulses. Since the new attitude is conscious, it replaces the original impulse that has been repressed with an opposite impulse. While it is somewhat like sublimation, it decreases the effectiveness of the impulse instead of increasing it. The individual who is basically a hostile person may try to cover up the hostility by always trying to appear as unduly conforming and pleasant.

Regression. This defense is sometimes seen when a person whose instinctual demands are blocked tries to find some substitution by going back to a happier time, such as childhood. There have been cases of regression where even the appearance and mannerisms of the person become childish.

Fixation. Fixation is another form of arrested development. Although there is no need to remain at this lower level, the person continues to do so. Thus, it is said, he becomes "fixated" in his behavior.

How does psychoanalysis relieve neurosis?

Psychoanalysis is a form of therapy, a method of treatment. It is rarely employed in the treatment of psychotics, because such people have removed themselves too far from reality; consequently, it is used most often with neurotics. Since Freud believed that the causes of neurosis went back into childhood, they are not easily unearthed, and the analysis is usually long and expensive. Because a great deal of unconscious material has accumulated in an old person, psychoanalysis does not want to treat

the aged; the process of digging the unconscious material out is too difficult.

Neurosis is a disorder of the ego, and has secured its foothold early in childhood when the ego was immature and incapable of resistance. The neurotic symptoms, however, may not appear until much later. The patient must tell the analyst "everything that comes into his head," the painful, the disagreeable, the meaningless, as well as that which he can state willingly. His dreams are interpreted by the analyst, and slips and omissions are noted. During the analysis the patient often sees the analyst as some important person in his past life and "transfers" his feelings about this person to the analyst. The transference may be positive or negative: if it is positive, that is, if the affectionate attitudes are stronger than the hostile ones, it is a great help to the analyst. When the analyst believes the time is at hand he tells the patient what he has discovered about him. In the successful analysis the patient accepts the findings, and the symptoms should disappear.

Since the ego has three jobs to do—meet the demands of reality, check the instincts and demands of the id, and avoid many moral punishments of the superego—great expenditures of energy are required. An ego that has been weakened by this conflict needs assistance, and psychoanalysis comes to its aid.

What is the present position of psychoanalysis?

When Behaviorism was dominating American psychology (see Chap. 4), Freudianism was just another school of psychology. In the past ten or fifteen years there has been a decided upswing in its favor, particularly in the area of clinical psychology. The followers of the psychoanalytic movement have been active in clinical research and have written numerous articles in psychological journals. Although some gestaltists have looked with disfavor on Freudian theory, the main opposition still comes from the newer behaviorists. Certain of these psychologists consider the division of the mind into conscious and unconscious states as only another kind of needless dualism. Roman Catholic psychologists have generally opposed Freudianism, because of the elevation of the unconscious over the conscious and the emphasis on sex as the motivating force in human behavior. The latter emphases have also been the chief cause of disagreement even among many members of the Freudian school. Some of Freud's

closest students and contemporaries were unable to admit this relationship, and founded "schools" of their own within the framework of analytic theory.

Two of these were Alfred Adler and Carl Jung. Although they differed from each other as well as from some of Freud's pet theories, they were in agreement that Freud had overemphasized the importance and place of sex in an individual's behavior. Space here does not permit a thorough examination of their theories or schools of psychological thought, yet a few generalities can be stated about their beliefs.

Adler held that man is motivated by the desire to belong to and to acquire status in his group. However, group membership means that a sense of inferiority usually develops. Thus physical defects, belonging to minority groups (religious, social, or economic), and other environmental threats can affect or change the way in which the person meets his problems, and some form of compensation, often an extreme form, is the method the person seeks in order to overcome his inferiority. In some instances this is successful—for example, Demosthenes became the greatest orator in Greece. The neurotic, however, is not able to surmount his feelings of inferiority. Seeking to show his superiority—in order to show others that he is not inferior—he tries to reach a goal that is one of overcompensation for him.

Jung, among other contributions, gave us the terms "extravert" and "introvert" as part of his "psychological types." The extravert is the person who lives his life according to the necessities of the external world and is very much concerned with objects and people in the environment. The introvert, on the other hand, is wrapped up in his own mental life. To oversimplify it, the extravert is the backslapping salesman type and the introvert is the scholarly research individual. Actually, to Jung, these are attitudes, conscious and unconscious, that direct behavior.

Are all psychoanalysts in agreement today?

Some leading psychoanalysts have, at least in some measure, formulated their own theories: Otto Rank, Erich Fromm, and Karen Horney to mention just a few. A brief examination of some of the main ideas of the latter may help to understand the position of the "neo-psychoanalysts."

Karen Horney believes that Freud placed too much emphasis on biological factors and too little on environmental factors in human behavior.

She discards his theory of instincts as unproved by the evidence and says that the Oedipus complex results from such matters as sexual stimulation by the parents, anxiety due to the parents' lack of respect for the child, and parental domination of the child. As a consequence, the child will cling to one parent, the one who is more powerful, since this seems to afford the child the best chance of getting the security he needs.

The main source of neurosis, she declares, is hostility, and repression merely intensifies this hostility. A child who lacks "genuine warmth and affection" from his parents can develop neurosis, in that his attitude will be one of distrust and hatred toward everybody. Instead of developing self-confidence, the child develops a basic anxiety, feeling helpless in a world potentially hostile. This attitude is the soil from which the neurosis grows.

The neurotic is the person who makes every wish a claim, one who needs to be always right, and who will not stand criticism nor be doubted. To him, his irrational needs are never unreasonable. Minor upsets are considered as major catastrophes. He is always wrapped up in himself, and one of the chief characteristics of neurosis is the shift of energies from developing the potential of the real self to developing fictitious potential of the "idealized self." Lessening one's anxieties, she says, is the aim of therapy, not seeking to gain mastery over the instincts.

In spite of the persons who "broke" with Freud, the majority of his adherents still follow his theories as they were conceived. They have acquired the title of orthodox Freudians. The psychoanalytic school includes such well-known figures as Karl Abraham, the Menningers, Otto Fenichel, and Ernest Jones. Through A. A. Brill's translation of Freud's writings into English the American public has come to know the basic theories of the man who made the world aware of the power of the unconscious.

SUMMARY AND EVALUATION OF FREUDIAN THEORY

In Freudian psychology repression is the chief cause of anxiety or, as Freud later and somewhat vaguely said, anxiety felt by the ego sets repression in motion. Repression is an unconscious act by the individual differing from suppression, which is a conscious or voluntary excluding of an unwanted idea from consciousness. Repression, which is a kind of "pretending" that the unwanted impulse does not exist, lowers a person's available level of energy, since it demands a "constant expenditure of

energy." How much energy the person has is probably due to his heredity, and thus one's ability to repress is more or less a matter of individual available energy.

It was Freud's belief, also, that repression does not work too well, unfortunately because the repressed material continually returns, or wants to return, to consciousness. This seems to be especially true when the individual cannot repress effectively the instinctual impulses that would injure him. Since the unconscious is so important in this theory, and since repression is not too effective, it would appear that not too much hope can be held out to man in his constant struggle between the life and death instincts, the demands of the id, and the frequent punishments of the superego. If the conscious is so subject to the unconscious, and if there is no truly efficient way to control the unconscious, man is badly hampered in his progress through life.

Without doubt, Freud was the real pioneer in his field. That he was sincere in his beliefs and that he contributed much to psychological thought is unquestioned. Although he possessed great scientific imagination and had important intuitions about human behavior, a large number of psychologists have believed that neither he nor his followers have been able to furnish the scientific data that would settle the problems he raised. Many of them feel that he allowed his lively imagination to create unscientific conclusions.

In the area of child development and personality the psychoanalytic school has made valuable contributions, but it is probable that it also has demanded too much. The contention of the libido theory that all bodily sensations are sexual, broadly conceived, is a particularly hard concept for many to accept. In a review of available studies in infant care and personality, Orlansky has concluded that the empirical evidence does not substantiate the finality of Freudian theory of infantile libidinal drives. He says that personality is rather "a dynamic product of the interaction of a unique organism undergoing maturation and a unique physical and social environment" (14).

That sex as a drive is important also is unquestioned; that it is as important as Freud claimed is not so obvious, even in neurosis. Sex and guilt feelings about sex may cause or contribute to the neurotic personality, but other factors, especially environmental ones, may likewise play a real part in the whole picture. As we have seen, certain of Freud's most famous followers have agreed with this latter belief.

The topographical division of the mind into the three regions of id, ego, and superego is plausible, yet the attribution of so much strength to the instinctual demands of the id seems unwarranted. Again, even some of the neo-psychoanalysts doubt this. The whole theory of instincts has not been too well received by psychology, and evidently Freud himself had some doubts about the instincts, for he later said that they were perhaps "our mythology."

Freudianism considers the present as only the development of the past, and that our earliest years are so important that they can "blackmail" us for the rest of our lives. Thus the aim of psychoanalysis is to connect the present with the past. The period of infancy is made the determiner of our personality structure. This, in many ways, takes away the need of the self to struggle for its betterment, and it is easier to blame others for one's predicament than to do something about it.

Psychoanalytic therapy has contributed in many ways to psychiatry and has aided large numbers of persons in relieving their symptoms of neurosis. On the positive side it has made parents and teachers more aware of the ill effects of too-repressive discipline and punishment, but it may have gone further than most psychologists in denying that there is a place for restraint and reasonable discipline in the rearing of the young. Perhaps the majority of present psychologists would view complete "permissiveness" as a doctrine that does not meet the needs of our culture.

When we examine the writings of leading psychoanalytic authors we learn that the Freudian conclusions about mental development have first been derived from the analyses of adult neurotics, later from direct observation of children. It is agreed that it is difficult to secure this kind of data on the earliest years of life before speech develops, so actually the greatest part of the theory of infant sexuality has been built up from the analyses of neurotic persons. Some psychologists have questioned the validity of this procedure, preferring to rely on direct observation and experimental evidence in formulating their ideas about child development. Statistics, too, never seemed to be important to Freud, in spite of his assertions that his cases were of "great number."

Perhaps, however, the chief criticism of the psychoanalytic school has been the charge of its subjectivity, in that it uses a method where one person reports all kinds of wandering associations to another person, who listens to them and then interprets them. This is, in a sense, a double kind of subjectivity, and opponents have insisted that verification of the data is

thus impossible. It is true that psychology seeks as much objectivity as possible to demonstrate its propositions, but a purely experimental method is often incapable of investigating mental phenomena; at least no such general method has yet been discovered. Yet there is the further problem of interpretation. The analyst may conceivably be basing the interpretation on a previously accepted premise, namely, complete agreement with psychoanalytic theory.

Thus we come to something like a dead end in our evaluation. It looks as if much has been said and perhaps even more "oversaid." Psychology would be so much simpler if the answer stood out in clear outline. When we declare that the experimental evidence does not exist for many of the theories, the Freudian will say that we "have not gone deep enough" into the personality structure, that we are staying around the edges. When we question the importance of the unconscious over the conscious we are likely to be met with the reply that it is obviously wishful thinking to place such importance on the conscious, on purpose, and on the voice of conscience in our behavior. We are of the belief that an explanation of behavior must take these factors into account.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: Hypnosis

Assignment: Read Valentine and Wickens, *Experimental Foundations of General Psychology*. (3rd. ed.; New York: Rinehart and Co., 1949), Chap. 14, pp. 278-302.

Questions for Class Discussion

1. Describe the experiment by Bass. What were his conclusions?
2. What is meant by hypnotic regression?
3. What is posthypnotic suggestion?
4. Can everybody be hypnotized? Explain your conclusion.
5. Is hypnosis a scientific fact? Has it any real value as a therapy?

PROJECT II

Topic: Dream interpretation

Assignment: Read The Irma dream in *The Basic Writings of Sigmund Freud*. Ed. by A. A. Brill (New York: Modern Library, Random House, 1938), pp. 195-207.

Questions for Class Discussion

1. How is this dream a wish fulfillment?
2. Are there any Freudian disguises in this dream? If so, what are they?
3. Do you believe that all dreams have meaning?
4. Do you think that there are universal dream symbols?
5. Can you interpret a particularly impressive dream which you have recently experienced? By what theory can you explain your dream?

PROJECT III

Topic: The Freudian theory of how we forget

Assignment: Read *The Basic Writings of Sigmund Freud*. Ed. by A. A. Brill (New York: Modern Library, Random House, 1938), Chap. 3, pp. 46-61.

Questions for Class Discussion

1. What place has the unconscious in forgetting?
2. What is meant by "self-reference" in forgetting?
3. How can a personal complex cause one to forget?
4. Explain Freud's two principal cases about the forgetting of names. What did he mean by the statement that name-forgetting was contagious?
5. Can you explain other ways that one can forget?

RECOMMENDED READINGS

- ENGLISH, O. S., and FINCH, S. M. *Introduction to Psychiatry*. New York: W. W. Norton and Co., 1954.
- FENICHEL, O. *The Psychoanalytic Theory of Neurosis*. New York: W. W. Norton and Co., 1945.
- FREUD, S. *An Outline of Psychoanalysis*. Trans. by J. STRACHEY. New York: W. W. Norton and Co., 1949.
- . *The Basic Writings of Sigmund Freud*. Ed. by A. A. BRILL. New York: Random House, 1938.
- JONES, E. *The Life and Work of Sigmund Freud*. New York: Basic Books, 1953, Vol. I.
- HORNEY, K. *Neurosis and Human Growth*. New York: W. W. Norton and Co., 1950.
- MOORE, T. V. *The Nature and Treatment of Mental Disorders*. 2nd ed. New York: Grune and Stratton, 1951.
- MULLAHY, P. *Oedipus-Myth and Complex*. New York: Hermitage Press, 1948.
- SYMONDS, P. M. *The Ego and the Self*. New York: Appleton-Century-Crofts, 1951.

Response as Fulfillment of Self-Demands

THE STRUCTURE OF THE EGO

What do we mean by ego?
Is the concept of self a useful one?
When do we begin to know the self?
How do social factors operate in ego development?
Why is self-esteem an ego-need?
In what ways do we seek to preserve the ego?

STRAINS IN THE EGO-STRUCTURE

What is the difference between neurosis and psychosis?
How does frustration affect the ego?
Who is the rigid personality?
What is understood by "paranoid personality"?
Why do many neurotics persist in infantile reactions?
What is schizophrenia?
How is nonconformity an ego-strain?
Who is a psychopath?

PHYSICAL EFFECTS OF EGO-STRAINS

What are psychosomatic disorders?
How do metabolic disorders and addiction affect personality?
Who is an alcoholic?

THE PHILOSOPHER René Descartes wrote, "Cogito, ergo sum"—"I think, therefore I am." To Descartes, the personal identity of self was fundamental. The most important person in the world to you is yourself. You say, "*I am a human being, I attend college, I remember when I was a child such and such happened, I want to*

succeed in life." You speak of me, *my* desires, *my* school, *my* likes and dislikes. Koffka (1) declares that we even locate ourselves spatially, as "to my left," "in back of me," and so on. Thus, in a way, you are the center of the universe, at least of your universe; yet the mature individual will also consider the place of the I in the over-all picture of ultimate values and objectives. I may well be the most important thing in the world to the immediate me, but there are in the world other persons and values which I must take into account in the estimation of my personal importance.

In spite of its obvious importance, the concept of the self has been overlooked by psychologists until rather recently. Socrates said, "Know thyself," but an objective psychology concerned with physiological and experimental demonstrations has deemed it a too-difficult task to analyze the I; however, today nearly all psychologists recognize the great importance of the self in their treatment of personality.

THE STRUCTURE OF THE EGO

What do we mean by ego?

As most generally used, the term "ego" refers to the I or me, to the intimate, or personal, self. Although we have already met the term in connection with Freud's division of the mind into his three regions of id, ego, and superego, we shall not limit our concept of ego to this.

Just before the beginning of the present century William James believed that in the complete concept of self there were actually two concepts, namely, the I and the me. As James described the self, the I is the knower or "self of selves," and the me is the observed self. This means that the I, or ego, perceives, acts, and adjusts to the external world, while the me of the self appraises what the ego does. In somewhat the same manner Freud thought of the ego as composed of two parts, the observer and the observed. G. W. Allport, Bertocci, and others look on the self as a more *inclusive* part of the total personality, with the ego being the principal part, or the *core*, of the whole self. As such, the ego integrates and gives unity and meaning to the experiences of the self.¹ (Cf. also Chaps. 2, 3)

¹ According to Symonds, there is considerable confusion and inconsistency in the terms "ego" and "self" as used by writers. He says ego refers "to that phase of personality which determines adjustments to the outside world in the interest of satisfying inner needs in those situations where choice and decision are involved." P. M. Symonds, *The Ego and the Self* (New York: Appleton-Century-Crofts, 1951), p. 4.

Is the activity of the self a conscious process? Symonds (2), who has written extensively on the subject, says that it usually is, since we think of the self as the awareness of ourself, and this awareness becomes more distinct or conscious as we describe our activity. On the other hand, we shall see that because it has great need to protect itself, many activities are undertaken by the self without full awareness. That is why a person can believe that he is something or somebody of importance, of extreme generosity, and so forth, even though others do not consider him such. Likewise a person may retain some queer form of behavior because he feels it is actually necessary for his activity. A man may be entirely ignorant of why he cannot straighten his neck and why he cannot carry his head in an erect fashion, although the doctors have assured him there is nothing organically wrong with him.

Is the concept of self a useful one?

First, when we speak of either or both of ego and self we do not mean a "thing" or an organ; the most we can say about them is that they are a process, or more exactly inner processes, which are giving direction and unity to behavior. We know that this is so because we say "I" and "me," and we constantly refer to "my" experience and "my" desires. We shall, at this stage of our inquiry, call this inner process by its more general term, the self.

This self has considerable permanence. We can say with some authority that you are just about the same person today that you were yesterday and, unless there is going to be some radical change in entire personality, you will be the same tomorrow. Therefore, we say that the self has *continuity*. Yet this permanence also means that the self has a *uniqueness* about it, differing from all other selves in our society. This consistency of the self suggests that it is always the frame of reference for the perception and experiences of the person. That is why we think of ourself as an individual, as possessing our own individuality. This individuality is the center of the entire personality.

What does self mean? Does it mean that which a person *thinks* he is? Does it mean what others think he is? Is it what the person *would like* to be? Or is it what he *really* is? After all, it is your self that you are talking about, and you should know yourself better than others know you. Perhaps you should, but often you do not. Although you may behave in such

and such a fashion and may even keep this kind of behavior for a long time, you may be quite unaware of the cause for the behavior, and hence in some ways you really do not know yourself. Also you may think you are such a person in your actions, yet what you think you are may be entirely different from what others think you are. What you *really* are, then, is a difficult answer to give. Probably the best that can be said is that you are the combination of what you think you are and what others think you are, plus what you aspire to be in the future.

When do we begin to know the self?

William James held that one's earliest conscious experiences are only a "big, blooming, buzzing confusion." Infants have not corroborated this description, but there is general agreement as to an infant's lack of self-consciousness. The infant is badly lacking in memory and has not lived long enough to separate the environment from the self. For instance, he apparently cannot distinguish his mother from himself, and he is unable to recognize his own image in a mirror. It is only after six months that he can distinguish strangers from his own family. Lacking an adequate language, he cannot express his discriminations between stimulus and response or between himself and his surroundings. Thus, to the infant, self and objects in the environment are one and the same.

From his work in child development Piaget found that the younger a child is the less recognition he has of his ego (3). The child gradually learns to recognize that he is an *independent* individual, since many objects and events in the environment resist his actions. It is because of thwarting or frustration that he becomes aware of the self, growing more conscious that he is something different from the environment and that other selves exist besides his own.

It seems clear that becoming aware of self is a gradual process, with a critical stage in the development occurring at about the age of two. At this time what is called *negativism* shows itself in a child's behavior, and the child replies by "no" when asked to do something (4). The requests of the parents and others are interpreted by the child as threats to his newly discovered ego, and his resistance is displayed by the negativistic behavior. We shall describe this again in Chapter 14. It is also approximately around this age that the child recognizes that he has a name. Soon he uses the pronouns "you," "me," and "I," and by the time he is three he will have

attained "a well-balanced sense of self" (5). This, of course, is only the beginning; his ego development still has a long way to go.

How do social factors operate in ego development?

In addition to the *personal* process of perceiving that he is a separate individual from others, the child grows to realize the fact that he is also a part of the *social* environment. As he matures he sees more and more the need to relate his experiences to his environment. The world in which he lives is a world of persons, objects, and groups of persons, and what attitudes or mental sets one holds about all these become directly related to the self. As we shall see in Chapter 15, attitudes are important in one's behavior.

While it is true that a child is mainly interested only in himself, as he develops or matures he becomes less egocentric, or concerned with himself, and grows more conscious of the need to conform to social situations and to gain social recognition. Why does this take place?

One fundamental reason for this is the child's need for *security*. In the beginning the ego assumes that the world is a place where every need will be satisfied as soon as it arises. The child believes that he will be fed, kept warm and comfortable, fondled and loved, and all else done for him promptly and fully. This is so because to the child the self and the environment are the same. With a developing understanding of an independent self, a self separate from the environment, the young child cannot live without meeting situations which seem to him to be threatening to this new self. He runs into demands which the society sets up, he encounters other individuals who insist that he obey their demands, he is favorably or unfavorably compared with others in his environment, and he grows to learn that he cannot satisfy his needs in a social vacuum. As the environment changes, the idea of an independent self grows. If he is to be a person of some worth, if he is to achieve recognition from others, if this new and independent self is to survive, he needs some society structure in which he can develop this slowly growing self-awareness.

Why is self-esteem an ego-need?

In the discussion of the human organism's behavior we hear more and more about *ego-involvement*, a concept which means that the closer any-

thing is to ourself the more clearly we perceive it; we are very much interested in that which is of immediate concern to us. If we thought that we might have a serious disease, we would become quite conscious of the symptoms of that disease. In similar fashion, the standing of a person in a group can become ego-involved, so that we refer to our status as "our," or "my," standing, "my" values, and "my" goals. Thus, these values and attitudes belong to me. Hence ego-involvement becomes a powerful source of motivation in our behavior.

All people want to be appreciated, to be highly regarded by others—this is esteem. From childhood on we are constantly striving to obtain recognition from other people. All individuals in all societies want esteem, even though the specific ways of gaining it will vary from one society to another: the peaceful holy man of India achieves it in his society, but such a person might be scoffed at in another culture. By many business executives the scholar is pitied or even considered an impractical fool, while the scholar in turn may perceive the businessman as a mercenary Babbitt.

Ego-involvement is associated with what we call *self-esteem*. Sometimes, in fact, a person by overestimating his ego-worth is styled "egotistical," which suggests an overevaluation of self. Self-esteem is associated with the idea of what I believe myself to be; this is called my *self-image*. According to Snygg and Combs (6), a person's concept of himself is actually responsible for his behavior. Styling this self concept the "phenomenal self," they say that this is "the only self he knows," and that the one basic need for every individual is "to preserve and enhance the phenomenal self." What a person does, then, is really the result of the way he sees himself, and if he perceives himself as superior or inferior he will behave accordingly.

How can this be accomplished? (a) We need recognition by others to prove to ourself that the self is really worth what we think it is. To keep our self-image we need others to support it. (b) We need self-esteem because, if we ourselves cannot perceive that the self is valuable, we will no longer strive to preserve it. Consequently, it seems clear that self-esteem is a basic ego-need for everyone.

Is the self-concept static?

Since the ego is capable of development, and does develop, it is also capable of change. In the healthy individual the ego is flexible enough to

adapt to changing demands from whatever source these arise. On the other hand, if there is to be continuity or consistency to the self, what changes do occur will generally be gradual ones.

A person's concept of himself does tend to remain constant. The self-image that has been built up so carefully will be kept pretty much intact. It suffices to meet one's needs. This, however, may result in a distorted perception because, in order that the self-image may be kept as it is, we sometimes deceive ourselves. Again and again we seek to "keep face"; in preserving the ego as we want it to be we can behave in many strange ways. We may excuse ourselves in different fashions, we tend to repeat all behavior which apparently has proved itself successful in the past, we often join groups solely because they bolster our self-esteem, and we sometimes refuse to perceive the objective situation as it actually is.

To preserve the self-image that he is a thoroughly honest and conscientious person, a man may perceive that others are not as trustworthy as he. If he is, for example, a teacher, he may complain that the rest of the faculty are "lazy" because they do not remain at school every evening until six o'clock, three hours after the ordinary dismissal time. In order to keep the "ideal me," this individual's perception tends to stray from reality. However, by such a distortion his self-image is maintained.

We have already seen how the ego, in order to preserve itself, manages to *repress* certain thoughts and ideas that would otherwise distort the self-image, or torment it by guilt feelings. Also, by the conscious process of *suppression*, many unwelcome and disturbing ideas are denied expression. Through *sublimation* some morally or socially unacceptable thoughts or desires are channeled into approved forms of behavior. These are frequently both useful and desirable ways of maintaining the ego in the face of social demands, although the Freudians would minimize the value of repression. We shall now examine other ways in which the ego is maintained.

In what ways do we seek to preserve the ego?

A frequently used method of preserving the ego, but at the same time fooling ourselves, is called *rationalization*. Here we deny or depreciate the value of an unattainable or unsuccessful venture, as in the familiar tale of the fox and the sour grapes. We declare that the getting of an A in the course is not worth the effort, only a "grind" would want one in any event.

Yet, if we did not rationalize our lack of success, our ego might be damaged. We indulge in daydreams, or *fantasy*, to support a wavering ego: the frustrated athlete does get some satisfaction in dreaming about the home runs or touchdowns he can make in his mind and the rejected lover imagines himself as a veritable Don Juan. Yet sometimes fantasy actually is carried over into accomplishment, and we *compensate* for our failings by developing skills or using other abilities to restore our self-image. Thus an unattractive girl may seek social popularity by becoming the campus comedienne or by learning to dance expertly.

Are these things harmful? Ordinarily they are not, since they do relieve some tension, and they seek to preserve our self-image. Compensation, especially, is often of considerable benefit to the individual, and it is only when these reactions seriously interfere with a person's behavior that they can be said to be detrimental.

While fantasy, or autistic thinking, can be a kind of compensation for a conscious or unconscious need, it can in some cases increase tension, as in many sexual fantasies (7). Compensation, too, may result in *overcompensation*. In such a case a person may attempt to achieve a goal or cover up some deficiency by behavior which is an unrealistic way of accomplishment of the direct opposite of the original activity. Thus he will spend most of the time collecting butterflies, not because he is a naturalist but because he wants community prestige and cannot achieve it in the usual manner. Or he will seek to compensate for a sexual inadequacy by promiscuous sexual activity in the belief that thereby he is demonstrating his great sexual potency.

These reactions are called *defense mechanisms* because basically they are defenses erected to protect the ego, and as such are self-defenses. Whether they exist in a temporary or a more permanent form, they all aim at keeping the self-image intact.

STRAINS IN THE EGO-STRUCTURE

As we have said, homeostasis can mean a psychological balance as well as a physiological balance. To keep a psychological equilibrium it is assumed that a great deal of energy must be expended by a person. We have seen how tensions and needs affect perception, and ego-needs are no exceptions.

The term "frustration" is the general term used to signify that a need has been thwarted. The need may be a biological, social, or

ego-need. Actually most of our thwarted needs are of the last type. Our efforts to satisfy the needs of self-esteem, security, recognition, and achievement are constantly meeting with obstacles erected by society and the culture. As a result, emotional stress and strain are developed, and the ego feels that these are a real threat to its structure. What can happen? Will the ego disintegrate completely or will it try to meet demands by compromises?

What is the difference between neurosis and psychosis?

The main differences between a neurotic and a psychotic are these: (a) The neurotic essentially does not lose contact with reality, the psychotic usually does. (b) The neurotic is aware that he has a problem or is troubled, although the cause is generally not known to him; the psychotic usually is not aware of the seriousness of his condition. (c) The neurotic does not lose the power to think and to will, while these capacities in the psychotic are greatly impaired. (d) The neurotic generally does not undergo a change in personality, but the psychotic does, and may reveal feelings and attitudes directly opposite to what they were.

The psychotic deviates more severely from what is called the normal. The law declares the psychotic is insane; the neurotic is sane, but is not well adjusted in his behavior and cannot carry out his activities effectively.

The perceptual processes of an individual are, in a sense, his own little "private" world. In order that there be consistency and continuity in this world, the person must constantly be ready to defend it, to patch it when it is torn, and to preserve it at all times. Into this private world the demands of the society intrude and sometimes cause frustrations. Although we cannot escape frustrations, how we meet them will decide the normality or abnormality of our behavior.

How does frustration affect the ego?

A frustrating situation demands action, something must be done by the person involved. If the ego believes that it cannot meet the situation it will try to escape by some form of self-defense. When a defense appears to work, it will be kept, and the more severe the frustrations become the more rigidly will the defense or defenses be applied. Thus the maladjusted personality is *deluded* into believing that he is overcoming frustration in a

normal manner. These self-defenses demand the expenditure of more energy than the organism can afford. Something must give way, and it does. Disorders of personality or character, organic disturbances, neurosis, and psychosis are the usual results.

Although the ego seeks to maintain its self-esteem and self-image, in these instances it is largely unsuccessful, and the person soon begins to despise and hate himself. The reason why this compromise does not succeed is that nothing is satisfactorily decided. As Horney says, a prominent feature in a neurosis is a lowering of one's realistic self-esteem. Not only does the neurotic believe that no one loves him, but he also comes to believe that he does not love himself.

Self-esteem may turn into self-depreciation, a familiar symptom of the depressed neurotic individual and also witnessed in some forms of psychosis. A person who has suffered a severe emotional shock, such as the death of a loved one, or a person who has loved and lost feels inferior or unworthy. Such a person is most often basically a selfish individual and has erected a number of surface defenses against his need for self-love. When these collapse, he blames himself too severely and finds little interest in life.

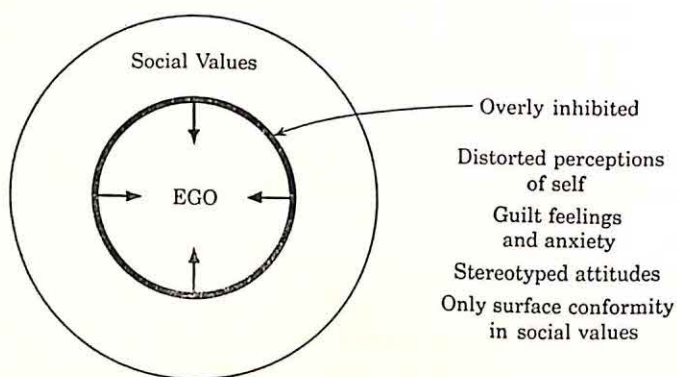
In general, disorders of personality arise from a condition of emotional immaturity, an inability to face reality and frustration. The result is a situation characterized by strange, peculiar, or bizarre behavior, which can be crippling to a person. While it is perhaps too much of a simplification to classify all frustrations of the ego into three areas of rigidity, infantile behavior, and nonconformity, these are such prominent patterns of behavior that we shall use such a classification for convenience in our discussion (see Fig. 40).

Who is the rigid personality?

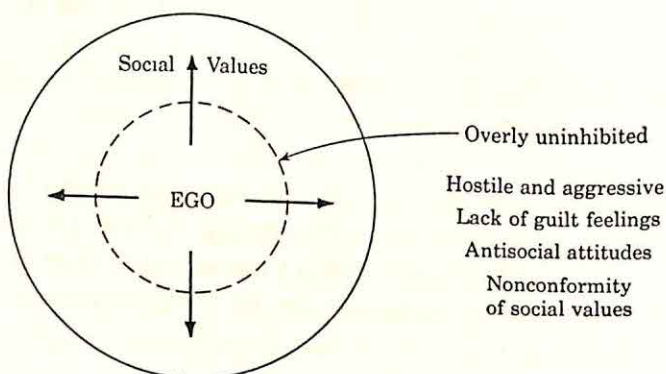
Fear is basic in anxiety, and anxiety is the base of all the neuroses. Since worry is a type of fear, it often results in continuing anxiety and is an ineffectual way to cope with frustrations. It is ineffectual because it is too vague.

When a child encounters in the environment persons and objects that dominate or threaten him he begins to feel that he is cut off from the satisfaction of his needs and believes that he is isolated and defenseless in a world potentially hostile. As a result, he develops feelings of anxiety,

attitudes of insecurity and inferiority. His perceptions become distorted, his thinking becomes illogical, and he is "forced" to adopt responses that are strange and unnatural. As Horney (8) puts it, "this means that he can move toward, against, or away from others." These suggest that he be-



The Rigid and Immature Personality



The Nonconforming Personality

FIGURE 40

TWO PROMINENT TYPES OF UNHEALTHY PERSONALITY STRUCTURES

comes dependent, aggressive, or withdrawn. In this moving toward, against, or away from others the anxious individual can become rigid and inflexible in his behavior. The symptoms of this state of rigidity are reflected in a childish clinging to others, an irritability, hostility, aggression, or withdrawal, and usually express themselves in attitudes that are stereo-

typed and rigid. As the name implies, rigidity means a lack of flexibility; in terms of one's behavior, it suggests an inability to adapt oneself to existing situations.

Persons who behave in this manner are fundamentally unhappy, frustrated, full of unresolved tensions, compelled to drive themselves to extremes, and are intolerant of anything or anybody that threatens to disturb their viewpoint. The rigid personality may seem to be abiding by the demands of society, but at the same time inwardly despises these demands and rebels against them. The rigid personality is more clearly identified with the compulsive neurotic and the paranoid personality.

What is meant by compulsive behavior?

Many neurotics are classed as *obsessive-compulsive*, because they have constant irritating or unpleasant ideas or are driven to perform acts that are usually meaningless. When such ideas or thoughts dominate the person's behavior they are called obsessions. Thus one may be continually disturbed by obscenities in his thinking. A compulsion forces a person to repeat some senseless or ineffectual form of behavior. The man who feels he is always being followed is driven to turn his head constantly to see if this is so. A continual washing of one's hands in the endeavor to remove some feeling of guilt is another example of a neurotic compulsion.

Such individuals are fundamentally perfectionists. They live by ritual, they find it difficult to relax, and since they feel unsure of themselves, they rationalize or excuse their actions. They are afraid of their emotions and consequently inhibit them. However, there are cases where the compulsive behavior results in merely a mild anxiety, without obsessions or compulsions severe enough to dominate their lives. These individuals are called *compulsive personalities*, and usually are perfectionistic in a "socially" acceptable manner. For instance, they are overly concerned with cleanliness, obedience, and perfection in their work. While these actions are not undesirable as such, these people use up too much energy in an attempt to maintain the unusually high standards they have set for themselves.

As in all these disorders, there are differences of degree. Some mild obsessions are nothing more than mild superstitions, such as the baseball player who feels he must tap home plate three times before he is ready to bat or the housewife who believes she must knock on wood to avoid a future catastrophe. There are other obsessive or compulsive acts, which

because of their continuance or symbolic reference approach a real psychosis. Such is the case of a young man who arises every morning at five o'clock so that he can begin to clean the house, a cleaning that continues until late at night. If anyone remonstrates with him, he grows angry and abuses the person. For some reason locked in his mind, this young man is protesting against a form of real or imagined tyranny or guilt, and by the "magic" of housecleaning is retaliating for the injury.

Why is the neurotic unhappy?

For the neurotic, says Horney (9), a wish or a need turns into an irrational claim; no matter how unreasonable or unrealistic, the neurotic believes that he is always entitled to priority and complete understanding from others. When such a person perceives that the goals he has erected for himself cannot be achieved and the "idealized image" of himself is, therefore, not fulfilled, he unconsciously begins to despise himself. Feelings of inferiority, guilt, and self-contempt invariably result, and unhappiness is continually experienced by the individual.

Because the tensions persist as unsatisfied demands, because failure is the usual result of such behavior, attitudes of inferiority are retained, causing responses which express fear, insecurity, and guilt. This attitude of inferiority underlies the perceptual process of viewing the ordinary situations in life as too uncertain to promise successful achievement. Discontent and dissatisfaction are the usual mental states for this person.

If the neurotic individual finds it difficult to live with himself, others in his environment find it equally difficult. Minor upsets are turned into major catastrophes, irritability and hostility continue to disturb the social atmosphere, and being compelled to live with a neurotic is a demanding matter at best. Hence, if emotions beget emotions, neurosis can be said to beget neurosis.

The neurotic tries hard to escape from real or imagined troubles and the actual cause itself may find expression in many symptoms. He may develop fears, pains, paralyses, obsessions, or the like to deceive both himself and others. While the actual reason for such symptoms may be unknown to him, they may represent a defense against the reason itself. For instance, one person may develop an allergy, another may have false "epileptic" seizures, and still a third may blink his eyes excessively in the symbolic attempt to flee a painful memory.

What is understood by "paranoid personality"?

The term "paranoid" is used in psychiatry to describe an individual who is so rigid in his behavior that he perceives everybody with suspicion. Stubborn, extremely sensitive, envious, moody, jealous, and stereotyped in his thinking, he feels that he is abused or persecuted by others, and many of his ideas are concerned with "building up a case" against people.

The student with thinly disguised hostility, full of "righteous indignation," who is ever ready to shout that "nobody can push me around," and who is distrustful of the motives of his teachers and classmates, is an example of the paranoid personality structure. Of course, such a person is not popular with anyone and is avoided as much as possible, which presumably only increases his suspicion and resentment.

In a severe form of this disorder delusions of persecution or grandeur are the main symptoms. As a rule, these individuals have to be hospitalized and, since delusions of persecution usually develop with the mental illness, are often dangerous to others. Because they believe others are enemies, these "enemies" must be overcome at any cost. Consequently, an intense dislike for others arises, parents and teachers are "out to get them," people are immoral or dishonest, and the paranoid tries "logically" to find support for these beliefs. Killing one of these "enemies" is to him often a logical conclusion.

Why do many neurotics persist in infantile reactions?

During wars many members of the armed forces break down under what is now called combat fatigue. When these individuals are placed in a position of great stress, they exhibit various neurotic symptoms. Physical exhaustion, inability to sleep, increased irritability, and hypersensitiveness are among the more frequent manifestations. Ninety per cent of these cases, says Strecker (10), are the result of immaturity, evidenced by lack of independence in thought and behavior and in a lack of ability to work under authority. Most of these individuals, he declares, have had a "mom," a mother who has failed to prepare her child to live on an adult social level and has been so overprotective that the child has never become emotionally weaned from her "smother love."

Of course, only a small percentage of people whom we call *immature* are in the armed forces; the rest are distributed in all walks of life.

Because they want to be continually protected they do not develop emotional or social independence. They remain dependent on others for the satisfaction of their needs. They feel helpless to meet the demands made on them. Often they become *fixated* in their immature behavior, which sometimes may be expressed in a mother fixation so that no other woman can be thought of with real love or affection.

The immature individual wants all his appetites and desires satisfied at once; like a child, he may sulk or weep when this is not done. He may even pretend that he is very ill and demand that all comforts be furnished him. In some instances he may regress to infantile levels of behavior, with the result that he acts, thinks, and makes the demands of a child. He may develop attitudes once held in childhood. This dependence on others can show itself in a lack of self-confidence, with reactions of either extreme timidity and passivity or aggression, hostility, and negativism.¹

Probably no one is 100 per cent mature emotionally, and naturally what is considered mature behavior for an adult or even an adolescent is not the expected behavior for a young child. Each age has its own standards. The older one grows the more maturity is expected, and our behavior is judged accordingly.

In what ways is anxiety a specific neurotic symptom?

Anxiety neurosis is described as "free-floating" anxiety and *anxiety hysteria* as anxiety connected with a specific situation. As the names suggest, individuals so classified are full of inner tensions, unduly fearful, apprehensive of danger or imagined danger, and due to their tenseness are always "ready" to experience anxiety. Sometimes specific *phobias* are the result. One may have an intense dread of either high or closed places, of germs, of death, of animals, of lightning, of men or women, or of numerous other objects or situations. Their talk is generally descriptive of their feelings, and they use such words as "dreadful," "weird," and "horrible," which indicate their emotional state.

Conversion hysteria, the original subject matter of psychoanalysis, ex-

¹ Certain studies have indicated that some neurotics express this dependence in what Alexander styles a "vegetative retreat." This condition is frequently manifest by chronic diarrhea, so that, instead of confronting an emergency, the person will regress to the performance of a vegetative function for which he received praise from his mother when he was a child.—F. Alexander, *Psychosomatic Medicine* (New York: W. W. Norton and Co., 1950), p. 62.

hibits such symptoms as motor paralysees, tics, convulsions, and spells of screaming. In the psychoanalytic school these are viewed as substitutions for repressed sexual impulses. A motor paralysis, for example, is a "defense against action" of an objectionable infantile sexual nature. While many substitutions may actually be such sexual defenses, it would seem that the extension of the cause to all such paralysees is unlikely.

What is schizophrenia?

In the psychosis of *schizophrenia* ("split mind"), formerly called *dementia praecox*, a prominent symptom is a regression to infantile levels of behavior. Negativistic, introverted, seclusive, these individuals care nothing about their appearance or cleanliness, appear to be lost in a world of dreams, hear voices talking to them, and experience delusions. Their behavior, as a whole, is full of bizarre responses and their thinking is like that of young children, primitive and magical. Generally they may be said to have lost contact with reality.

However, schizophrenia as a disorder does not present a clear-cut clinical picture: its cause, symptoms, and limits are still unsettled. Possible psychological factors are inability to meet frustration by adopting extreme measures to preserve their fantasies, regression, and self-repudiation of the world of reality. Living, seemingly, is so difficult a task that the schizophrenic does not want to meet it, so he goes into a shell like a turtle. Often the disorder is called a "turtle-defense." In mental hospitals a large majority of patients classified as psychotic are schizophrenic, and more than thirty thousand new cases are admitted every year in the United States. In spite of increased efforts to treat this disorder, it continues to increase, especially among late adolescents and young adults.

Schizophrenics differ among themselves in their behavior: some are alert, some are apathetic, others are highly suspicious. Some laugh and giggle like young children, others are mute and refuse to say anything or merely echo a word from a sentence said to them. Often their verbal responses are absurd, greatly confused, or consist of "crazy" responses, for example, "the design of a fly's foot" or "a thing that wouldn't live in a tree."

Although not so serious a condition as schizophrenia, what is known as the *schizoid personality* is often seen in individuals who are lonely, aloof, and withdrawn. Deeply introverted, these people are given to the excessive

use of fantasy, seem to resent any intrusion into their private thoughts, and in general never quite achieve what they could achieve. Even if no one picture will describe their various behaviors, they are basically "thinkers rather than doers." Their responses are vague or confused and sometimes their actions are downright childish. Fundamentally we can call them immature in personality development.

How is nonconformity an ego-strain?

One form of immaturity is nonconformity to the accepted demands of society and social living. In the normal or almost normal person this is called rebellion, an inability to contain hostility. When it becomes a steadily recurrent part of the personality we have a condition of neurosis or psychosis. In still another form it expresses itself in antisocial or criminal behavior.

The criminal or delinquent individual has a distorted perception of the world about him. Life is only a series of thrills to be enjoyed, and prompt satisfaction of the appetites is often the means of furthering the antisocial adventures. If aggressive behavior is the means by which these can be had, then it is adopted. Punishment only seems to aggravate the condition. Today criminals are studied by sociology and psychology, but there is no universal agreement as to the cause of criminal behavior.

In their study of delinquent boys the Gluecks (11) found that the personality structure of these boys showed evidences of aggression, hostility, suspicion, and resentment. They exhibited behavior patterns that were impulsive, held less conventional ideas than nondelinquents, sought to indulge their immediate appetites, and were not very realistic in facing existence. According to Healy and Bronner (12), delinquency expresses itself in such reaction types as: achieving compensatory satisfactions through adventure thrills, bolstering an inferior ego by seeking recognition in a delinquent group, consciously or unconsciously seeking to get revenge on parents or teachers, and generally trying to inflate the ego by aggressive and antisocial attitudes toward authority. Aggression, theft, or property destruction are the most pronounced overt acts of delinquent boys, while sexual offenses occur most often among girl delinquents.

Hostility and nonconforming behavior apparently go hand in hand. The antisocial individual is aggressive, socially immature, insecure, or emotionally unstable. Often the behavior is a compensation or a defense for or against some deeper need that has been frustrated.

In seeking to trace the cause of hostility, Sontag (13) declares that a child may express hostility because his dependent love needs have not been adequately gratified by the parents or because he can obtain love from others and in so doing can retaliate against his parents. Repressed or passive hostility to the parents may exhibit itself in such nonconforming behavior as withdrawal, sullenness, or enuresis, though the child may not recognize the hostility as it exists.

Who is a psychopath?

Although many writers in the field of abnormality do not favor the term "psychopathic personality," it continues to be used to describe the individual who is called by Lindner "a rebel without a cause." The psychopath is a confirmed liar, will steal, forge checks, indulge in sexual promiscuity, and even in sexual assault. His sense of right and wrong is so poorly developed that he will easily excuse his misdeeds. Impulsive, he will reject discipline and lawful authority. He lives only to satisfy his most immediate appetites and shows no real remorse for his actions. Often the psychopath will present an affable front, will smile and laugh readily, but only to get from others what he wants. Because he is so wrapped up in his own selfish interests, the psychopath apparently never matures to the point of changing his behavior, even when punished severely.

Since he has no regard for the rights of others in the society, the psychopath sooner or later manages to be caught in his own misdeeds, and usually ends up in prison. Apparently these individuals have never had the satisfaction of being loved and returning love, so that they have never been able to form sincere attachments to others. Even where their intelligence is superior, their character development is so retarded or entirely lacking that they are called "moral imbeciles." Conscience is something they have never developed, and the result is complete indifference for the rights of others and a lack of guilt feelings for their own behavior.

Are delinquents becoming sadistic?

Sadism is one expression of hostility. It was formerly held that the sadist sought sexual satisfaction from inflicting pain and suffering on another. This apparently is not entirely correct. Unable to secure normal love relationships may be one cause, but the inability to relieve any lasting tension also can be the reason for the behavior. The sadist enjoys hurting

others, so that his personality structure is fundamentally cruel or destructive. Sexual assault is one form of response by this type of hostile individual, but some sadistic persons seemingly derive pleasure from causing others to cringe and weep while they are being verbally threatened. The offenses range from burning or injuring animals to maiming or murdering human beings.

There is a growing recognition that many delinquents seek thrills from sadistic experiences, and some prominent psychiatrists declare that these destructive impulses have been furthered by "comic" books, motion pictures, or television shows which depict and even glorify methods of inflicting physical suffering. Although these probably are factors in the total situation, it is believed that the lack of a normal family life is the basic reason for juvenile delinquency, which has risen sharply in the past decade. The sadistic form of the delinquent behavior may be a cultural circumstance.

PHYSICAL EFFECTS OF EGO-STRAINS

We have already mentioned that in a conversion hysteria a problem that was basically psychological had been converted into a physiological disorder, as in the case of a paralysis of some body organ. This has happened because a more realistic solution of the problem had been prevented, and the individual, in order to preserve some shred of his ego, unconsciously managed to "deposit" his problem in some part of his body, which would prevent him from facing the problem as it existed. Thus a soldier may develop a paralyzed arm to prevent his engaging in a coming battle which he fears greatly. For the same reason, a person with a severe sexual conflict may develop a paralysis in some part of his body. Hostility can likewise be the cause of a conversion hysteria: a child may develop an allergy because he is angry with his parents. In these cases the bodily disorder is *symbolic* of the mental conflict.

What are psychosomatic disorders?

During the past two decades medicine has come to realize that organic disorders and illnesses can result from continued emotional strains, and there is a rapidly growing literature in what is now called *psychosomatic* (mind and body) *medicine*. It has been shown that prolonged emotional

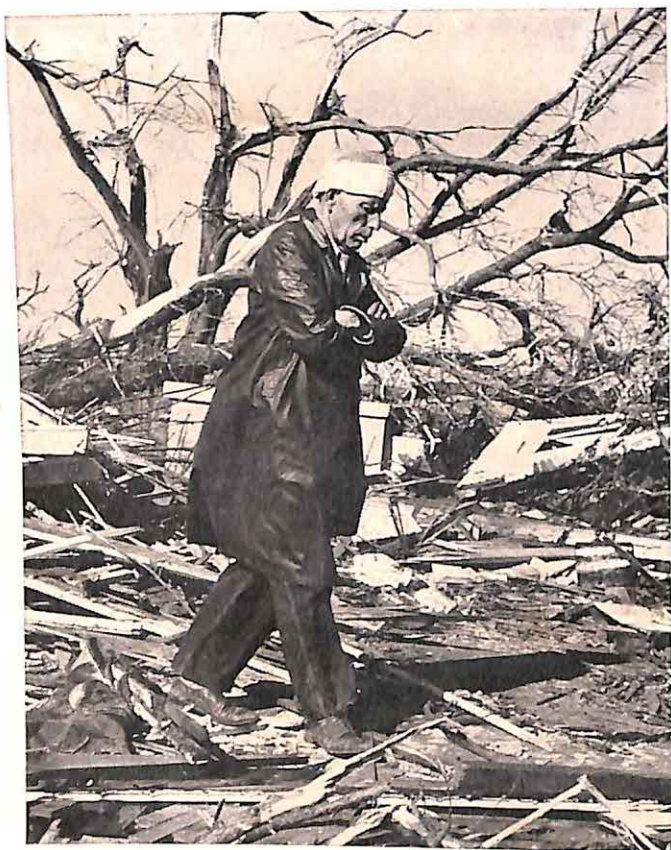


Courtesy LIFE Magazine
© TIME, Inc.

ILLUSTRATION 22

At the age of nine months this is what a baby sees when he looks out of his playpen at his mother. As shown here, he has a fair idea of the depth and proportion of the three-dimensional world, but he still tends to focus on only one thing at a time.

Reproduced by permission of Dr. Arnold Gesell and the Clinic of Child Development, Yale University.



By LIFE
 Photographer
 Leonard McCombe
 © TIME, Inc.

ILLUSTRATION 23

Emotional shock arouses needs and tensions in this man that affect his perception of his predicament.



ILLUSTRATION 24

Acme

The cocky attitude of these boys, under arrest after a four-months' series of burglaries, illustrates the unconcern of delinquents over their irresponsible, antisocial adventures.

disturbances—fear, worry, or hostility—can result in various physical or organic disorders, such as peptic ulcer, colitis, and disturbances in the respiratory and circulatory systems.

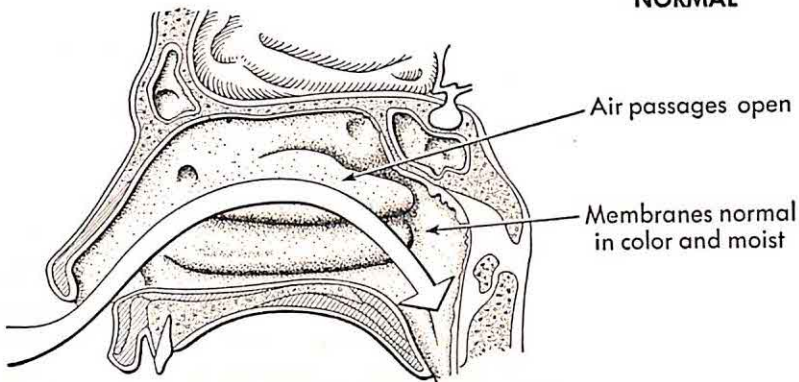
The most research in psychosomatic medicine has been done in connection with peptic ulcers. Although there are different theories about the way these ulcers develop, nearly all investigators agree that they are caused by emotional factors, and hence are truly psychogenic. It is also believed that certain types of individuals are more likely to develop peptic ulcers than others. Hartman declares that Chinese coolies and the Indians of Latin America never have ulcers, attributing this to their stoic attitude and lack of strain and ambition. Alexander says that the ulcers are the result of an unconscious wish to remain in a dependent and sheltered state, such as early childhood, but because this is carefully repressed, the overt behavior of these individuals is generally aggressive, ambitious, and laden with all kinds of responsibilities. This is witnessed so often in the busy executive type of person (14).

The gastric disturbances associated with psychological factors also include overactivity of elimination (diarrhea) and underactivity in elimination (constipation). Aggression, worry, and the tendency to hold on to the good things have been offered as explanations for these disorders (15). Likewise, a person who is angry for a prolonged time undergoes, among other bodily changes, a heightened blood pressure. There is nothing symbolic about the occurrences, but organic disorders may nevertheless result.

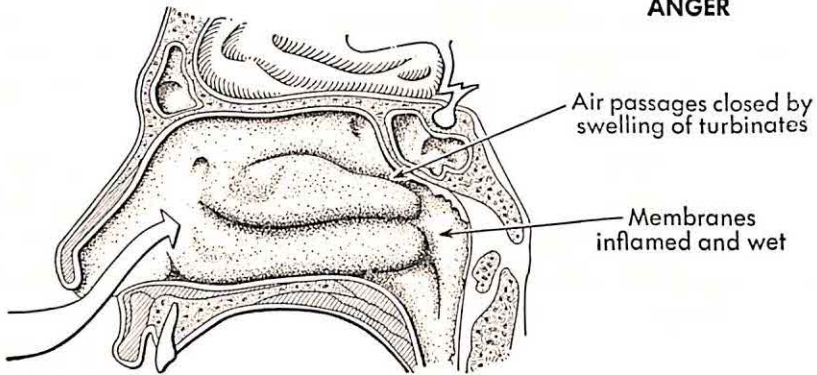
Certain skin disorders, asthma, headaches, and other illnesses have been associated with emotional strain. Although some of these may be caused by physical factors that have been aggravated by the emotional condition of the individual, there is sufficient evidence to believe that in other cases the emotions are the instigators of the bodily ills. We might say that these physical disorders become chronic when a person is unable to deal satisfactorily with his perceptions of the tensions and needs experienced, and continues to meet them by his overstimulated emotional reactions. The body drains off the tensions in the form of some organic complaint, and hence the term "psychosomatic" has acquired its place in the description of personality structure.

Alexander (16) writes that the fact that the mind rules the body is "the most fundamental fact which we know about the process of life." Because of wishes and ideas, the body carries out complex motor activities; conse-

NORMAL



ANGER



FEAR-PANIC

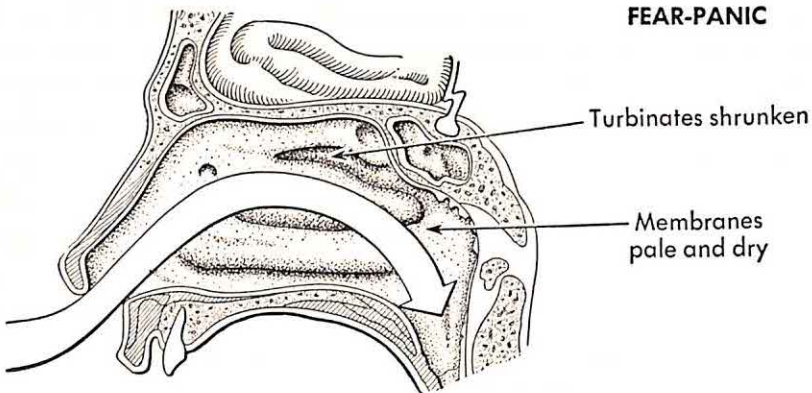


FIGURE 4I

NASAL PASSAGE shows effect of emotion on body. Change caused by anger is comparable to that caused by cold weather. (Redrawn by permission of James Lewicki.)

quently, if we are to understand the machine we call the body we must know the purpose of this body of ours. The purpose must be sought in the mind.

How do metabolic disorders and addiction affect personality?

Disturbances of the normal metabolic processes may result in personality disorders. Morgan and Stellar (17) point out that severe vitamin deficiencies (as in nicotinic acid) cause pellagra and that people suffering from this disorder exhibit nervous and irritable behavior, memory loss, and may even become psychotic. Thiamin deficiency, also, can result in symptoms of apprehension, irritability, and depression. Some researchers hold that disturbances of the metabolic processes predispose a person to psychosis, in that the person will tend to break down under environmental situations that would not cause breakdown in others who were not so deficient.

Addiction to drugs and alcohol may cause both physiological and personality disturbances. If these are withdrawn from the person, he is likely to experience severe physiological symptoms. Addicts who use such drugs as morphine, opium, heroin, or marijuana are individuals who are unable to face tension and frustration and thus seek to escape in the perceptual distortions caused by the drugs. Certain drugs cause mental deterioration. Alcohol, when used to excess, seriously interferes with a person's economic and social adjustment. Due to the false feeling of well-being and a reduction of inhibitions it brings, its use frequently results in a pathological condition. Alcoholism is rapidly developing into one of the nation's most serious problems, causing widespread criminal acts, immorality, and property damage, as well as the destruction of self-esteem and achievement of the alcoholic.

Who is an alcoholic?

Persons who become alcoholics, even if mentally superior, are essentially immature in emotional development. Unable to withstand normal frustrations, they usually seek an escape in regressive behavior. Their refusal to deal with reality, it is said, permits a retreat into fantasy, a regression to happier times with a temporary bolstering of the ego-needs of self-worth and recognition. The immaturity is evidenced by their continued

rejection of the obvious fact that reality cannot be changed by their distorted perceptions.

Although alcohol is a depressant, it temporarily manages to create a false feeling of elation by lowering the person's awareness of his basic anxieties. Since the worries are pushed into the background, the individual often feels important and superior, and sometimes this feeling of superiority will result in acts of an aggressive nature. Fighting is frequently the consequence of heavy drinking.

Alcohol, since it provides a way of relieving tension, is often relied upon for this purpose. Hence alcoholism is rarely cured without helping the individual find new means to meet his difficulties.

The culture has set up a distinction between the "social drinker" and the real alcoholic. People who drink only at social gatherings, who drink moderately and not to excess, and who partake of alcohol for reasons of sociability and not because of the need to relieve emotional tension are not considered alcoholics. To many, this distinction seems to be an arbitrary one. Often it is used as a rationalization and although the person may not think of himself as an alcoholic, his friends will perceive him as such. The dividing line between the persistent or daily social drinker and the alcoholic is generally a thin one.

SUMMARY

That the ego and the self are extremely important in behavior cannot be denied. The ego and the self are concerned with perceptions and values, social and personal. They are closely identified with attitudes which have been learned and which motivate behavior. They respond to the demands of living, biological and social, but are especially responsive to the needs and demands that are conceived as the picture of the "ideal me."

When this "me" is threatened, it will defend itself with all available means at its disposal. It will fight hard to maintain the self-image; it will compensate to keep it intact. It will rationalize, minimize, and blame others; sometimes it will blame itself. Often it will go to the extremes of rigid or infantile behavior; it will show more or less strong evidences of nonconformity; it may even "prefer" physical disorders to unconditional surrender, having been deceived into perceiving these maladjustments as necessary to retain its idealized image. Hence it is clear that the most important person in the world is "you" as you perceive yourself.

When the self is threatened, it narrows the field of its perception. Snygg and Combs term this "tunnel vision," for the reason that a threatened self cannot permit itself the luxury of any perceptions which loom as dangerous to the beloved self. The limiting of one's perceptions, however, does not dissipate the threat, and the maladjusted behavior is only increased and intensified. The defenses erected by the self are, therefore, substitute reactions of protection and, depending on their severity, are more or less serious strains in the ego-structure.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: Abnormal behavior in rats

Assignment: Read N. R. F. Maier, "Experimentally Induced Abnormal Behavior," E. L. Hartley, H. G. Birch, and R. E. Hartley, in *Outside Readings in Psychology*. (New York: Thomas Y. Crowell Co., 1950), pp. 744-54.

Questions for Class Discussion

1. Can animals become neurotic?
2. Describe the author's experiment in detail.
3. What was his explanation of the results?
4. What other aspects of abnormality were found?
5. Can we compare this behavior to that of neurotic human beings? Suggest ways.

PROJECT II

Topic: Maternal overprotection

Assignment: Read D. M. Levy, "Maternal Overprotection," in R. G. Kuhlen and G. G. Thompson (Eds). *Psychological Studies of Human Development* (New York: Appleton-Century-Crofts, 1952), pp. 387-95.

Questions for Class Discussion

1. How were the twenty "pure" cases selected?
2. Specifically, what does maternal overprotection mean?
3. What causes a mother to be overprotective?
4. Describe the behavior of overprotected children?
5. What suggestions would you make regarding a desire to change the behavior of a child who has been overprotected?

PROJECT III

Topic: Emotions and gastric effects

Assignment: Read the above title in Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart and Co., 1949), pp. 265-69.

Questions for Class Discussion

1. Describe the visceral disturbances that can occur along with an intense emotional reaction?
2. Explain the causes of gastric ulcers.
3. How can the mind influence the body?
4. What are the arguments for and against psychosomatic disorders?
5. How do these disorders differ from conversion hysterias?

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Response of the Self in Society

GROUPS AND SOCIALITY

What is a social relation?
What is a group?
Can we classify races?
Are there types of groupings?
How do we belong to these groups?
What do prestige groups expect of us?
What does a functional group demand?

THE DYNAMICS OF GROUPS

Does a group have a mind of its own?
How is individual behavior affected by the group?
How are groups dynamic?
Is there a "social climate"?
What is the result of conflicting social demands?

THE EFFECT OF SOCIETY ON PERSONALITY

How does the culture affect individual goals?
Is competition necessary?
To what degree can society mold the personality?
What is leadership?
How important is morale?

THE EGO is the center or core of personality, but man lives in the midst of other human personalities and the description of man's behavior must include the interaction of this individuality with his fellow men. Social psychology studies human behavior in its social setting and situations. In this chapter we shall be primarily con-

cerned with the part that membership in a group plays in the behavior of the individual.

GROUPS AND SOCIALITY

What is a social relation?

People behave differently in the actual or suspected presence of other people than when they are alone. *Why* they do so is what we ask a theory to explain. We can ask what makes a multiplicity of human beings into a social group, for it is generally agreed that simple aggregations are not societies. A social relation, Blumer (1) says, arises when each of two persons takes into account the demands of the other. Consequently, they have to be aware of each other and, at least in imagination, refer what they do or think or say to each other.

The intimacy of the social relation ranges from the way we take the mere presence of any other human being into account down to the face-to-face relationships in which we know clearly and definitely what the other person does, feels, and wishes. For example, a person who believes himself quite alone in his room changes his behavior the moment he thinks anyone *might* be observing him. He may not know who the person is, but there is a façade that he presents to the world and he does not want to be caught with it down. Similarly when we visit a strange city we take at least as much care of our appearance and demeanor as we do back home. Yet in this strange city does it matter so much whether we are clean shaven or meticulously dressed? The English word "one" as used in the sentence, "One pays his bills," and the corresponding "*on*" in French and "*Mann*" in German symbolize the anonymous but very real society to which we belong at all times and under all but the most unusual circumstances. Even persons doomed to spend their lives on an uninhabited island must, for a long time, continue to take an unseen human public into account.

The fear of being stared at and ridiculed by this anonymous public exerts a strong and pervasive control over normal adult behavior. The threat of this ridicule, scorn, and hostility is our constant monitor, even though we are not too sure as to just how watchful it may be at any given moment. We could style it *social anxiety*. At the other end of the scale is the intimate social grouping in which the members know quite specifically what is expected of each and what will happen if they do not

live up to these expectations. Thus children have dinned into their ears exactly what is expected of them at every minute of the day. They have particular credit and debit relations with each of their brothers and sisters, with their father, mother, uncles, aunts, and other relatives. Any mistake is usually detected immediately and corrected forthwith.

What is a group?

As we have said, at birth the human organism is entirely dependent on others for his existence. This dependence at once means that he is in a group, namely, the family. This involuntary membership also means that he is automatically a member of other groups, such as the national group, probably a church group, and an economic group.

As he matures, the person increases his group memberships. While a child he belongs to play groups with other children and when in school he is a member of his class and joins clubs and gangs. During adolescence he belongs to crowds, cliques, and clubs, and after he enters the world of business or the professions he becomes a member of fraternal organizations, golf clubs, professional societies, unions, and the like. Almost in spite of himself, man is a "joiner."

We can consider, then, a group as implying any two or more persons having a common interest. This common interest is also a distinguishing character of large groups such as nations, religions, political parties, and economic classes. Sociologists prefer to call these "classes" instead of groups, reserving the latter term to describe more personal or intimate relationships. Another classification differentiates the *in-group* and the *out-group*, or the *we-group* and the *they-group*. Although income may be a factor in this classification, other factors such as race, kin, local environment, and nationality can be the criteria of discrimination. For instance, the ancient Romans considered all non-Romans as "barbarians," and a clan of mountain folk such as the Hatfields could be styled a *we-group*, with the McCoy's as the *they-group*.

Can we classify races?

Actually the term "race" is a misleading one. Geneticists believe that there are no fixed races, only groups which change as the environmental conditions and the mating of individuals take place. It can no longer be

claimed that there are any "pure" races. The arguments for a division of mankind into different races have been both physical and psychological.

Physical differences used to distinguish races have included skin color, blood types, shape of the nose, texture and color of hair, and perhaps one or two other physical features. None of these so-called racial differences have been able to distinguish races. There are all kinds of skin colors in all races, all blood types are found in all races, there are straight and hooked noses in all racial groupings, and the same applies to hair and other physical features.

The psychological argument is equally fallacious. The claim that heredity accounts for intellectual or superiority-inferiority racial differences such as the "supermen" of the Nazis has never been demonstrated to any scientific satisfaction, and if such differences have been found, they are more easily explained on cultural and environmental bases. Races are dynamic classes, not static groups of people. We do not get much help in our description of the average individual's behavior from the fact that he is a member of a certain race. Classification of men into races is plausible, but to say that such classification itself explains the behavior of the individuals in the race would be quite erroneous. That race may be a factor in gaining membership in prestige groups, a type of grouping to be examined shortly, is another matter.

Are there types of groupings?

There are so many groups in our lives that we have to group the groups themselves, that is, classify them for convenience in our discussion. We can distinguish three broad types of groupings: ¹

Affectional. In affectional groups the members demand from each other love and emotional security, and such services as would prove such love and security. Examples of affectional groups are families, friendship groups, chums, and lovers.

Prestige. Some groups have as their primary purpose the granting of or the preservation of the status or prestige of their members. Exclusive clubs, castes, professional societies, and the like all may have as one of their chief aims the marking off of their members from the nonmembers.

Functional. Functional groups are those deliberately organized to carry

¹ This classification is adapted from that used by H. S. Broudy, *Building a Philosophy of Education* (New York: Prentice-Hall, 1954), Chap. 12.

out a collective enterprise or to achieve some goal collectively. Legislative bodies, labor unions, cooperatives, political parties, and charitable organizations are all examples of functional groups.

How do we belong to these groups?

We can belong to each or all of these groupings, and everyone belongs to some or all of them, in different ways. Sherif (2) has distinguished between the groups to which the individual relates himself as a part (membership group) to which he aspires to relate himself psychologically (reference group).

For example, a man may think and even act pretty much as the average Republican does. He may admire the ideals of the Republican party and its candidates for office, but he may not be a formal member of the Republican party, may not make a contribution to it, or may not even vote in its primaries. Nevertheless, for him the Republican party is a *reference* group. He tends to see problems and situations as the Republicans see them.

However, let us switch the example. We might have a registered Republican who makes contributions to the party, votes in the primaries, and yet does all these Republican things simply because he was born into a very old Republican family, and it is easier for him to continue the tradition than to make an issue over the fact that deep down he may not feel or think about political issues as do the Republicans of his day. In other words, for him the Republican party is not a reference group, although it is a formal membership group.

What do prestige groups expect of us?

The family is the prime example of an affectional association, even though it carries on many activities other than the affectional. In the next chapter we shall discuss the family grouping in some detail. However, in a complex society, of necessity, we belong to other groups as well.

Some associations we enter voluntarily and knowingly for the purpose of gaining or raising our status with our fellows. Other status groups include us as members without our having formally joined them. Joining the country club is an example of the first, belonging to a minority group or the middle class is an example of the second.

What a specific status group demands of its members depends somewhat on how it goes about securing and maintaining status for its members. For instance, to belong to the "400" or to be listed in the *Social Register* one must meet certain requirements of money, position, and family. For membership in Phi Beta Kappa there are other requirements. The qualities that will get you into one of these organizations will not necessarily get you into the other. The various professions have associations which confer prestige on their members, but they have so many other functions that this status function is secondary and the requirements for membership tend to be largely professional.

We can, therefore, speak of two major types of status associations: those that depend on achievement along certain dimensions, for example, professional, scientific, heroic, or athletic, and those based on other criteria not wholly within the control of the individual, such as birth, skin color, economic class, country of origin, and so forth.

Psychologically there is considerable difference between these two types of prestige organizations. The achievement type excludes the non-competent and claims special virtues for the members but only in their field of competence. Hence a society of physicians would hardly make the claim that its members be honored for their athletic prowess or even their character. The exclusions are *rational* and the grounds for them are clearly known to all who might be interested. Exclusion does not throw a shadow of inferiority on the excluded persons, unless there be among them disappointed and frustrated would-be physicians.

The nonachievement groups, however, have to claim *special* virtues for their members. These imply clearly that serious personality or character faults are in the excluded ones: the Nordic race, for example, was supposed to have a monopoly on certain virtues such as courage, a sense of honor, and honesty. Therefore, the people excluded from this kind of status organization view it negatively or even fearfully; it is either hated or feared, or both, depending on its aggressiveness and strength. The people in the *Social Register* may be envied but are probably not vigorously hated by those excluded, whereas the Ku Klux Klan is hated and feared by its announced victims.

What does a functional group demand?

The group in the office, or factory, or staff is a functional group in that it is created to perform an enterprise in a collective fashion. There are many other examples of functional groups.

It is more difficult to generalize about the demands of such groups, because of the almost endless variety of type of function. Yet functional groups seem to have some things in common. They demand: (a) loyalty to the purpose of the organization, (b) enmity to individuals and groups which endanger that purpose, and (c) the exertion of effort in the discharge of duties connected with membership.

Perhaps in our own culture the most pervasive type of functional organization is the hierarchical arrangement so characteristic of large-scale industry, education, and government. We call this a division-of-labor organization. In such organizations there are levels of authority and power with relatively few individuals exercising large powers and relatively large numbers exercising little power. Such an organization demands from each member the precise performance of a relatively small task, for instance, an operation on an assembly line, but no matter how small the task it is indispensable to the whole. Although the task is never dispensable, the person performing it is. Hence the individual worker, unless he is on the highest levels of authority, is substitutable, and consequently anonymous.

It is difficult for a worker to form complex goals in this kind of situation. Although he may know that his operation contributes to the end product, there is always the gnawing awareness that thousands of others could do his bit just as effectively. Because the task is fitted rather well within the limits of the worker's capacity, his job provides him little challenge and no sense of achievement, unless endurance of monotony be such an achievement. For large numbers of men such endurance is the first demand of an occupational group. Promptness, steadiness, and routinized effort are the first requisites for keeping a job or getting ahead a little.

In the second place, the basic substitutability of the individual worker has led him to believe that his only defense against the economic tides is his union or association. Such associations are not confined to manual workers. College professors also are impelled to unite against threats to their economic and intellectual security. This means that the individual

is increasingly required to work with others, and that he must be able to go along with his group's decisions however distasteful they may be to him on some particular occasion. In a culture that has prided itself on the free self-determination of the individual, this new kind of cooperative docility is a relatively new demand.

Finally, complex social organizations with complicated hierarchies of authority make the individual feel that he is powerless in the face of the organization. He feels forces operating on his life, but he cannot place the responsibility for them. A person purchases a fairly expensive automobile, perhaps somewhat more expensive than he can afford. Things go wrong with it, and he takes it back until the guarantee period expires. He still has trouble; the dealer shrugs his shoulders and blames the manufacturer, but the prospect of tilting with the manufacturer or the law overwhelms the average citizen, so he upbraids the manufacturer or suffers from a vague anxiety whose source he cannot seem to ascertain. The same kind of thing may happen with his taxes or the education of his children.

One could make a long list of groups that make demands on the individual, but the student can profit more by making a list for himself. We do know that we cannot hope to understand the meaning of individual behavior unless we also know a good deal about the social tug of war in which the individual is involved and how he is seeking to make his peace with it.

What is group loyalty?

In any event, the group to which we belong voluntarily or involuntarily will demand of us allegiance to its values and to its way of perceiving social realities. There is now a wealth of literature to show that class stratification is a real influence in the way we perceive the social scene and our role in it. For example, Murphy (3) points out that "the middle-class member and the working-class member who discuss a nation-wide steel strike during a national emergency cannot discuss at all except as owners of property and, on the other hand, as wage-receiving elements in an economy which is not felt in the same sense to be theirs."

Groups all share in common the characteristic of demanding a sort of absolute loyalty to themselves. In other words, although a group feels itself generally to be "right" in all conflicts with other groups, it cannot forgive a member who "lets down" his own group even if it is not "right" in a

particular instance. Even minority groups that are persecuted and despised demand this kind of loyalty from their members, including those who would prefer not to be members of the group. Indeed these are regarded as the worst traitors of all, and are labeled turncoats and renegades, a charge that not even the most traitorous of renegades can hear without flinching.

Likewise, *we* feel insulted when our group has been attacked and feel that we have been praised when the group has been praised. This is what, according to Sherif (4), constitutes ego-involvement in responses arising from group membership. This is seen clearly in adolescent groups, where the group or gang begins to replace the feeling of belongingness formerly accorded only the family.

Loyalty to the group also means hostility to other groups, or at least a sense of distance from other groups (5). The hostility to these out-groups can take various forms, such as prejudice, discrimination, or actual conflict, although these do not always go together (6). Finally the attitudes held by the group are incorporated by the members of the group as their own, and ordinarily will be used by the individuals even when not actively participating in the group as such.

THE DYNAMICS OF GROUPS

In classifying groups we must not get the idea that groups are static or unchanging, or that a member of some group will behave always as the group behaves. One can leave a certain church to become a member of another church, a person can quit the Elks and join the Rotarians, and a citizen of one country may seek citizenship in another. We shall now proceed to investigate some of these changes.

Does a group have a mind of its own?

Many psychologists once believed that a "group mind" did exist. Le Bon thought that a group had a "collective mind," that it possessed a single unity of purpose. It was held that in a lynching, for example, the individuals in the crowd lost their individuality and become automatons in their behavior. The mob, it was believed, acted with the group mind. Today nearly all psychologists reject this concept, because they are convinced that behavior can be explained on the individual level. On the

other hand, the group does have existence as a unit and has properties of its own. Membership in a group can affect individual motivation, and individual needs and desires are often aided and strengthened by group support. The attitudes of the individual may be created or modified by membership in a group, yet, as we shall see, basically these are individual processes.

When an individual has membership in a group his behavior is affected in some fashion. How and why it is affected is frequently due to the changes that occur within the group itself, and Lewin, especially, has presented sufficient evidence to support this concept of group dynamics. To understand the dynamic characteristics of groups, we must first understand the psychological field of the individual.

What does psychological field mean in group behavior?

We have indicated in a previous chapter what Lewin meant by the psychological field, a construct against which one's psychological behavior can be observed. Thus one's behavior is not explained solely by personal factors, but also by the interaction between the individual and the environment. This means that we must also take into account the way a person *perceives* the environment; we must not merely consider the environment as it objectively exists. In other words, the environment also is psychological; it has meaning for the individual.

What does this mean? The psychological environment corresponds in many ways to the external world around the person, but it is more than that. It includes the needs of the person, the goals the person has erected, and the amount of freedom the person has in the society to satisfy his needs and to achieve his goals. We have already discussed needs and goals, as well as their perception; our concern now is to examine the position that social groups take in the psychological field.

Lewin called this psychological field the "life space," the space in which a person moves psychologically. A person's behavior may differ considerably from one environment to another one. The social group, therefore, being a kind of environment, is important in the concept of life space. The position of a person in a group and such factors as belongingness, "climate" or "atmosphere" of the group may radically affect his current behavior. We shall examine these more specifically.



Acme

ILLUSTRATION 25

Are people aware of their behavior in a crowd?



United Press

ILLUSTRATION 26

(above) Group loyalty can reach explosive violence when some of the group "let down" their cause and become "scabs." (below) Even the most conservative may exhibit bizarre behavior while engaging in certain group activities. From their costumes, guess what these people do in "civilian" life.

United Press Photo





Acme

ILLUSTRATION 27

How does social atmosphere affect behavior? Here Princess Elizabeth, with Prince Philip in the background, sashays like a country cousin in blouse and skirt, as she enjoys a square dance in the mansion of the Governor General of Canada during the royal tour in 1951.



Courtesy LIFE Magazine
© TIME, Inc.

ILLUSTRATION 28

A leader represents the ideals of the group better than anyone else. Here Dave McDonald, president of the United Steel Workers, sparks the victory celebration after successful negotiations.

How is individual behavior affected by the group?

Even if there is no such thing as a group mind, a separate and distinct mind existing for the group apart from the individual minds of the members of the group, we must concede that individuals in a group frequently do exhibit varied and different behavior while they are members of the group from other times when they are not actually part of the group. One study, for example, demonstrated that when a group of young children were presented with a common frustration, the unity of the group was strengthened (7).

Even when there is no immediate threat to a group, a person may indulge in behavior that he would not ordinarily undertake. For instance, because his group is engaging in a public celebration the person will shout, clown, or dance down Main Street attired in a cowboy suit, and squirt water from a pistol at the bystanders. Outside the group this person may be a most conservative and sedate businessman.

Since, as we have suggested, affectional, prestige, and functional groups make various demands on their members, much of an individual's behavior is determined by his group membership. An adolescent secures membership in a neighborhood gang and, even if the values and standards of the gang are antisocial, he must adhere to these if he is to retain his membership. If reprimanded by his parents or teachers he will shout that all the others are doing these things, and so will he.

Membership in a group can, therefore, *create* standards and values for a person or it can *strengthen* existing ones. The hostile attitude of a business executive toward the rights of his employees may be furthered by his joining an organization that has as its purpose the destruction of all labor unions.

Can individual needs determine the function of the group?

If the group can influence the behavior of the members, is it possible that the needs of the members can determine group goals?

In smaller groups this is more easily seen. The local chapter of a college fraternity is a relatively small group drawn from the total college population. We can safely say that the members of the fraternity belong to it for more or less common needs or interests. Although the needs of companionship, better food and living quarters, and more opportunity for

social functions are involved, perhaps the ego-needs of prestige, recognition, and personal worth are the important ones. These will determine the goals of the fraternity, so that a fraternity will emphasize the securing of the best scholars on the campus, or the top athletes, or the wealthiest students, and so forth. The goal of one fraternity will be to hold the smartest dances, another will try to spread the best table in the college, and a third will seek faculty approval by maintaining a dignified and scholarly atmosphere.

In larger groups the individual needs and goals of the members are not seen so clearly, yet here also the structure and purposes of the group are fundamentally determined by the individuals comprising the membership. National and religious groups have been radically changed in their aims by revolutions occurring within them, and large industrial groups have been forced to modify their policies because of individual demands from the members of some subgroups in the total group structure.

How are groups dynamic?

Although many groups, such as religious, charitable, and political organizations, are relatively stable entities, any group is capable of change. We are familiar with the attempts of certain corporation executives to wrest control of the company from others in the organization so that they may occupy the top leadership. Sometimes this is also seen in a national political group and, if the attempt is successful, the political values of the party can be modified. Franklin Roosevelt built the New Deal from the defeat of the more conservative leaders of the Democratic party. In any group, large or small, instabilities within the group may cause a change in the structure of the group.

External pressures can likewise change a group. Although, as indicated, this may result in a strengthening of the group, it can also mean a reorganization of the group or even its disbanding. Sometimes a college administration can force all fraternities to cease operation, and a successful rival labor union can cause the defeated opponent to quit the company involved.

Many groups dissolve because there is no need for their continued existence. As Sherif indicates, this is especially true for spontaneously formed groups, such as crowds or gangs. When members "settle down" by getting

married or by securing jobs demanding social conformity, the group no longer serves its original purpose and probably will disintegrate (8).

That groups are dynamic is seen in (a) the way they are formed and (b) in the way they change and dissolve. As many social psychologists have shown, groups are frequently formed spontaneously. The adolescent clique is an excellent example of a spontaneously formed group. Primarily this group gives its members a feeling of belonging, that is, status. Likewise the adolescent school clique may turn into an antisocial gang, and this gang may, in turn, disintegrate when the external or internal pressures are severe.

Is one group membership more important than another?

Certain authors in the area of social psychology seek to explain an individual's behavior by its social setting or field. Suppose we ask: Since John Smith is an American, a Protestant, an Elk, and a young businessman, which of these groupings will be decisive in his present behavior? According to Brown (9), if we know the underlying field condition we can answer the question. For example, if America is at war, Smith's national membership will be of great importance in his behavior, whereas during times of peace his membership in the Elks can exert great influence in his actions.

This is an interesting theory, yet fundamentally it is not the social field that is ultimately going to decide the question of the person's behavior. The answer lies in our knowing what needs the person has and how and in what way he is able to perceive them. Even though the social setting or field is useful in describing the total behavior, we cannot declare that this itself will result in any given behavior for the person. We must know the individual as an individual before we can explain his actions. We need to know something of his past as well as the present. Although he may behave differently in a group than when he is outside the group, his behavior will still be the result of whatever needs he perceives, and not the consequence of the underlying social field structure for any given time. John Smith will be a loyal American whether the nation is at war or at peace, and whether he is mild or aggressive in his actions, holds prejudices against persons or not, or severely punishes his children has nothing to do with the field structure as such.

Is there a "social climate"?

Lewin, who did much research in the area of group dynamics, was of the belief that groups were "sociological wholes," that they had a dynamic unity of their own and were different from the parts, and that the organization and goals of a group were sometimes different from those of the individuals in the group (10).

One of the reasons for this contention was the idea of the "social climates" of groups. We have already mentioned this in a previous chapter. The study by Lippitt and White (11) is usually cited to show the effect of such on the behavior of a group of boys under different types of leadership. In the *authoritarian*-led group everything was decided by the leader; in the *democratic* group the group itself decided issues although encouraged and helped by the leaders; in what was styled the *laissez-faire* group no leadership at all was provided. The conclusions of the study indicated that the behavior of the boys in the authoritarian group exhibited more hostility, showed less desire to work together, and evidenced some lack of cooperation. In the *laissez-faire* situation the boys soon became dissatisfied with their accomplishments, and disorganization and frustration were the results. The democratic group showed more feeling of unified effort, and group goals were more effectively carried out. The authors concluded that the motivation of the individuals in each group were affected by the social climate of the group. In other words, the "climate" or "atmosphere" of a social situation is the property of the situation as a whole.

Can we explain why this should be the case? Essentially the concept of a social climate or group atmosphere may be understood only in terms of individual ego-needs of recognition, esteem, and achievement. Where the group leader decided all issues, as in the authoritarian group, the different individuals felt "left out"; they could not achieve because they felt personally excluded from achievement. This in itself is a thwarting of ego-needs, since the person is asked to participate and at the same time is denied the opportunity to participate. He had the need to belong but could not achieve belongingness. In the *laissez-faire* group the situation is different only in perspective. Since no leadership at all was provided, the boys were not provided with the adult supervision they expected. This contributed heavily toward a denial of a feeling of belonging, and the lack of a definite goal and the feeling of accomplishment toward that goal

resulted in frustration and in the engaging in of spontaneous and highly individualistic activities.

Social atmosphere frequently "sets up" a situation so that the individual's behavior conforms to it. For example, the social atmosphere of a library, and that of a formal dance will elicit different behaviors. What a person can *expect* from a social situation presumably can go far in explaining what he will do in the situation.

In the library one can expect security, that is, freedom from interference with an activity demanding concentration; at a dance the security expected is the opportunity and permission to acquire social prestige through a "give-and-take" of social pleasantries with others. We could extend this idea to include more stable social situations, such as the home, the school, and the office, each situation possessing its characteristic atmosphere and carrying with it the accompanying expectations.

What is the result of conflicting social demands?

Because human society is a complex society, it is often the case that contradictory social demands are imposed on the individual. The child is curious to explore numerous situations but is restrained by his parents and teachers. The adolescent is told that he must stop behaving like a child, yet is denied the privileges of adults. Although an adult is a member of a particular culture, sometimes his group affiliations will not recognize some of the cultural norms of behavior: a Catholic, for example, is forbidden to secure a divorce so that he may remarry. Certain other church groups frown on dancing, smoking, or other generally accepted forms of entertainment, and a person may at times be even a member of two or more groups holding contradictory values.

We know that the usual result of a conflict situation is frustration for the individual, which can be likened to a pushing forward and a pulling backward at the same time. In the conflict situation the person is placed in a position that seemingly demands inconsistency in his behavior. The more inconsistency that is demanded the more the person is likely to develop a neurosis or perhaps some character disorder. When the values of one's various social groups—family, church, clubs, and so on—clash, the individual is hard pressed to maintain a satisfactory balance in personality. What course is open?

The solution to such a situation is not easy. As we shall see later, self-

knowledge is the way in which a person can effectively maintain a healthy personality. The power to choose one's social activity, difficult as it may be on occasion, is one of man's greatest responsibilities, yet one of his real assets. The manner in which he seeks to integrate cultural conflicts and the way in which he attempts to avoid inconsistencies are as much a part of the individual personality as the personality is a reflection of the particular culture. It is necessary sometimes to reject an aspect of the culture or some established social norm because it conflicts with another cultural or personal demand, yet an intelligent choice by the person is possible. The healthy personality has to do this, and does do it, all his life.

THE EFFECT OF SOCIETY ON PERSONALITY

We have indicated how much society enters into the shaping of the self and the ego, and, as we shall see in the next chapter, the individual incorporates as his own so many of the attitudes of others in his society that we must take into account the impact of the culture on the personality of the individual. In describing the effect of society on personality we must, however, always be careful to describe the *particular* culture in question, since cultures differ among themselves and these differences will be reflected in the various personalities in each different culture.

How does the culture affect individual goals?

It was only a few decades ago that the youth of America were constantly told that anyone with the right initiative to work hard could succeed in life, and the Lincolns, Carnegies, and Fords were held out as illustrations. Today there is much more talk about security and the benefits to be derived from a "safe" job. It is argued by some that this has resulted in the individual's search for safe mediocrity instead of greener pastures.

If we accept Maslow's hierarchy of needs, described in Chapter 6, there may be much to recommend this contention. Until the more basic needs of the person are satisfied, other needs are held in abeyance. Our culture does place a high premium on economic security, and a steady job means that the individual can feed and shelter his family. Economic security can be considered as part of the ego-need for security, and numerous

questionnaires have shown that the typical worker puts economic security at the top of his list of demands from his job.

Granted that this is so, we must not forget that other equally important ego-needs also exist. The needs for self-recognition, for self-esteem, and for achievement constitute great segments of the total ego-structure. How can these needs be attained in a culture that says a steady job is the really important thing? What can the typical worker do to gain satisfaction of these other needs?

If the culture has set up economic security as a prime goal for everyone to achieve, the culture should also create *ways* for the individual to achieve his other ego-needs. If a person is unable to secure adequate recognition in his work, he must be able to secure it in his nonworking hours. Let us briefly see if this can be accomplished. Achievement can be sought in hobbies, skill with cards, the ability to discuss the latest athletic feats, or in becoming an amateur dramatic or television critic. The culture is quick to recognize this, and advertisements cover hundreds of magazine and newspaper pages with suggestions on "how to build it yourself," learn to play a musical instrument and become popular, or master the latest dance step. Without doubt, much of the popularity of our sporting events is due to the fact that they permit the spectator to relieve his tensions by attaining a kind of recognition among the other spectators. His opinions about the event are respected. The list of such ways would be of considerable length, but it would appear that the culture is seeking to offer compensations for the denial of ego-needs.

Is competition necessary?

Competition is fundamentally a form of aggression, since a person must push another individual around if he is to compete against him. From the first day a child goes to school he finds himself in a competitive situation. Schools give grades, publish honor rolls, offer prizes for the superior students, and the pupil soon learns that he must compete successfully against his classmates if he is to achieve the rewards expected by his parents and teachers.

Americans, especially, have looked with pride on the power of competition. It has often been pointed out that the success of the American industrial system is the result of increased production and selling, and that both producer and consumer have benefited from a competitive market.

If the manufacturer makes more profits, the buyer gets a better article at the same time. Yet there are cultures in which competition is regarded with low interest and even distrust; among the natives of Samoa and the Zuni Indians, for instance, competition is not held in high esteem, but cooperation is.

Probably all we can say about this matter is that a complex society determines the perceptions of the individual concerned. If competition is perceived as a desirable way to achieve recognition, then it will be accepted as an ego-need. If labor unions and manufacturers' associations are perceived as needed to reach cultural goals, they will be supported. In highly complex societies, competition apparently is increased. Primitive peoples seem to be more willing to share their possessions instead of competing for them; an examination of the history of the North and South American Indians would appear to bear this out.

However, "getting along" with others is very useful in our behavior. If a person believes that he can secure self-recognition, and possibly achievement, by compliance rather than competition, such a person may adopt that behavior as his own. There are many "clinging vines" in both sexes, and no doubt they cling because they see the advantages to be gained by this method. The yes man is a familiar figure in many corporations. Industry acclaims dependability more than any other single trait of personality, and this is basically a form of compliance. Therefore, whether a person perceives himself as competitive or as compliant probably means that he has the need to adopt and retain that way of behaving. The society may value a competitive atmosphere in economic matters, but in face-to-face relationships in situations of sociability the more compliant, friendly personality is preferred.

To what degree can society mold the personality?

One of our most widespread but erroneous concepts is "allness." Such a concept implies that all the individuals within a given society possess the same or similar personalities. Thus all Germans are home-loving, methodical, scientific, and warlike; all Italians are artistic, musical, clannish, and talkative; and all Mexicans are lazy, superstitious, gracious, and like to sing love songs. Accepting the premise of allness, we easily fall into a rigid stereotyping of cultures, with the assumption that the individuals within the cultures all have one common personality. Stereotyping not

only limits the idea of personality, but also overemphasizes a few traits to the exclusion of others.

This concept of allness is clearly incompatible with the psychological viewpoint that the individual personality is unique. Individual differences in both heredity and environment have been so well established that the principle has been almost universally accepted by psychologists. Yet the fact that the individual is unique does not mean that he is unaffected by the society to which he belongs. As mentioned before, a person relates himself to a reference group in much of his everyday behavior, and this means that his values and aspirations are erected and measured against this group's norms. A person who desires social prestige would not live in a tar-paper shack nor wear castoff clothes. As Sherif (12) writes, "In short, the scope of his scales is socially set; his performance within them is his." Therefore, individuality is still individuality, though the social framework will furnish meaning to the particular kind of individuality expressed.

Freud was of the belief that the particular society, that is, the circle of people who influenced the developing personality of the child, was responsible for the repression of standards which the society disapproved, and hence the individual would not permit into his consciousness those standards which did not meet with social approval. Conversely, if this is correct, the ethical and moral values of the particular society are not repressed, but are acceptable to the person without any question or guilt feelings. If the society approves of smoking or the drinking of cocktails, the individual member of the society will follow along with the herd, and the child will readily conform to the social norms of behavior.

A simple illustration of how the society can affect one's personality can be seen in the complaint of an adolescent boy who feels that his lack of athletic ability has denied him the close companionship of the other boys in his school. More or less ostracized as a result, he is forced to develop some other form of recognition or he may withdraw from social contacts to his own solitary pursuits.

What is leadership?

Is a person born to be a leader or does he learn to lead others? Have leaders definite personality characteristics which cause them to stand out from those whom they lead?

In spite of the fact that appearance, height, and physical fitness can play some part in leadership, the statement that "he is a born leader" is misleading. The pages of history are full of great leaders who were not handsome, tall, or even in good health. Lincoln was tall but hardly handsome; Hitler and Mussolini were short, and Franklin Roosevelt was a partial invalid. While Robert E. Lee could present a striking figure to his troops, Ulysses S. Grant also was an excellent general although he usually looked like an untidy shop clerk.

It seems, however, that a person must possess a certain amount of intelligence in order to be a great leader, and it may well be that, while some emotional appeal, emotional drive, speaking ability, or other prominent ability is useful in leadership, these factors can hardly explain the position of power. One thing that does stand out in the evaluation of a leader is some ability which the person possesses *and* which his *group perceives* as valuable to the maintenance of the group.

Obviously the individual must be a member of the group he is to lead, and as such a member he holds the same values and ideals as the group. For some reason the group perceives that he can represent their ideals better than anyone else in the group and is capable of attaining the success that the group as a whole desires. Soldiers in foxholes care little about their leader's appearance, but they do care a great deal about his ability to accomplish the mission and get them back to their lines in safety.

How important is morale?

We say that a group has good morale, when there is a high degree of solidarity among the members. Morale is necessary if the group is to function at its maximum efficiency, and any group that is free from dissension and internal disagreement usually has high morale.

Morale is largely determined by the leadership that the group receives. This is seen in both large and small groups. A political party with a strong leader inspires unity and confidence in the party, and in like manner the coach of an athletic group is often the reason for the fine esprit de corps of the team members. As we have already seen, the morale of the group that had the democratic leader was higher than that of the groups with authoritarian and laissez-faire leadership. Social climate, then, may be said to be a real factor in group morale.

Industry is especially aware of the value of high morale among the

workers, and studies have shown how production is directly related to high or low morale. In order to ensure good morale many industries provide the workers with rewards and privileges beyond their customary salaries. We can see instances of bonuses, free hospitalization, company housing projects, restaurants run at a loss by the company so that the workers may eat well and cheaply, and even industrial counselors whose duties are to aid individual workers in solving their personal problems.

One study which sought to determine the degree of morale among workers in shipyards during World War II found that there was "a circular causal relation between morale and production." When the production is good, there is increased motivation for the workers, and when production is going well, satisfaction with one's job will be high because psychologically everything seems to be moving along; the superiors treat the men better, there is more opportunity for advancement and recognition, and even where the outside living accommodations are poorer than they could be, the workers' morale continues high (13).

SUMMARY

The fact that one has membership in groups and classes is bound to affect one's behavior. Human society is necessary for human behavior, and the feeling of belonging is expressed in group memberships. Although there are many kinds of groups, for most purposes they may be typed as affectional, prestige, and functional. The ego-needs of self-esteem, security, and self-recognition are furthered and maintained by group support, and membership in a group can create new individual needs for the members.

Even if psychology looks with disfavor on the concept of a "group mind," groups may be thought of as "sociological wholes" in that the behavior of the individual in the group may be affected by such factors as "social climate," group norms and attitudes, and changes occurring within the group for various reasons.

The culture in many ways determines the responses that an individual makes, and in that sense we can say that part of our personality is already made for us. This is so because the culture has from experience decreed what we must do if we are to remain in the culture. Unless one adjusts to these social norms, one finds oneself in trouble.

Membership in a group will often prescribe what responses a person makes, at least in so far as group behavior is concerned. If a person is to

remain a Catholic, or a Presbyterian, or a Jew he must hold the same beliefs about God that his church holds, and membership in the group will shape the attitudes of individuals in it. If the person wishes to achieve status and position in his group he must conform to the norms of the group, and if he is to be a leader in the group he must belong to the group. Consequently, if we are to describe a person's personality we must know what social and cultural norms of behavior press upon him, but more especially we must understand *how* he *perceives* these norms. There may be reasons why a person does not want to behave in the manner the culture declares that he should.

Because group status is so necessary for an individual, competition or some form of aggressive behavior may be employed in the securing and keeping of the status. In the particular culture involved these expressions of behavior can act as effective motivations.

Leadership depends less on personal characteristics than it does on group perception that the leader is the person with that ability which will best realize the ideals and accomplish the aims of the group. As a member of the group he will lead, the leader holds the attitudes and values of the group and in this fashion symbolizes these values.

In many of the preceding chapters we have used the word "attitude" and in this chapter on group behavior the term has increasingly appeared. In any description of human behavior the attitudes of a person are of great importance, and we shall now proceed to explain how and why our attitudes cause us to respond in the special ways that are so descriptive of our social behavior.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: Cultural differences in child rearing

Assignment: Read Allison Davis and Robert J. Havighurst, "Social Class and Color Differences in Child-rearing," *American Sociological Review*, 1946, 11: 698-710. Adapted and abridged in R. G. Kahlen and G. G. Thompson (Eds.), *Psychological Studies of Human Development* (New York: Appleton-Century-Crofts, 1952), pp. 130-37.

Questions for Class Discussion

1. What are said to be the major cultural systems in the United States?
2. Describe the procedure employed in this study.

3. Are there any significant differences in child-rearing practices between middle and lower social classes among white people?
4. Are there any such differences between these classes among Negroes?
5. Comment on the final conclusions of this study.

PROJECT II

Topic: Sociometry

Assignment: Read J. L. Moreno, "Evolution of Group Organization," in E. L. Hartley, H. G. Birch, and R. E. Hartley, *Outside Readings in Psychology* (New York: Thomas Y. Crowell Co., 1950), pp. 639-48.

Questions for Class Discussion

1. What is a sociogram?
2. Explain the terms "stars," "isolates," and "triangles."
3. Evaluate the usefulness of this method.
4. What were the conclusions about the existence of any differences in social development at different age levels in this study?
5. If you were a teacher, just how would you proceed in constructing a sociogram? What method would you use?

PROJECT III

Topic: A leaderless group discussion

Procedure: Eight members of the class will be chosen by the instructor to act as raters. The rest of the class will then carry on a twenty-minute discussion about the value of college fraternities and sororities. During the discussion each of the eight raters will make notes about the discussants, noting especially the number of times a person participated in the discussion by expressing an opinion or in asking or answering a question. At the end of the twenty-minute discussion period each rater will list the three highest ratings he has made.

Questions for the Raters to Discuss

1. Although no leaders were chosen for the class discussion, has any substantial agreement been reached on who were the leaders of the discussion?
2. Why did each rater choose his three highest ratings?
3. Does this procedure indicate anything about "who is a leader"?
4. In what situations would this procedure be useful?

5. Would it be likely that the same persons would obtain the highest ratings in a different group situation?

RECOMMENDED READINGS

- BROUDY, H. S. *Building a Philosophy of Education*. New York: Prentice-Hall, 1954, Chap. 12.
- HORNEY, K. *The Neurotic Personality of Our Time*. New York: W. W. Norton and Co., 1937.
- KRECH, D., and CRUTCHFIELD, R. S. *Theory and Problems of Social Psychology*. New York: McGraw-Hill Book Co., 1948, Chaps. X and XI.
- LYND, R. S., and LYND, H. M. *Middletown in Transition*. New York: Harcourt, Brace and Co., 1937.
- SHERIF, M. *An Outline of Social Psychology*. New York: Harper & Brothers, 1948, Chaps. 5, 6, 7, 8.
- SHERIF, M., and CANTRIL, H. *The Psychology of Ego-Involvements*. New York: John Wiley and Sons, 1947, Chap. 10.
- STONEQUIST, E. V. *The Marginal Man*. New York: Charles Scribner's Sons, 1937.
- WARNER, W. L. *Yankee City Series*. 4 vols. New Haven: Yale University Press, 1946-47.
- WHYTE, W. F. *Street Corner Society*. Chicago: University of Chicago Press, 1943.

The Emotionally Charged Response: Attitudes

BEHAVIOR AND ATTITUDES

*What are attitudes?
Do attitudes endure?
How are emotions related to attitudes?
Are all attitudes of equal value in behavior?
Are attitudes specific or general?*

FORMATION OF ATTITUDES

*How do needs establish attitudes?
Can attitudes be formed from unconscious needs?
In what other ways are attitudes formed?
What is the role of the culture in attitude formation?
What are introjection and identification?
How does family life form attitudes?*

CHANGE OF ATTITUDES

*Will attitudes resist change?
Why are education and re-education vital to change?
Why are racial prejudices formed and kept?
Do words change attitudes?*

THERE is a story about a group of men who were trying to understand each other better by an exchange of ideas. In order to choose a neutral subject for them to consider, they decided to write about an elephant. The Englishman wrote at some length on "Hunting the Elephant in India"; the Frenchman prepared a perfumed, gilt-edged brochure called "The Love Life of the Elephant"; the German

came up with a twenty-page essay "An Introduction to the Elephant," and the American presented a one-page sheet entitled "Bigger and Better Elephants." While we do not subscribe to the idea that each nationality has a mind set of its own, the story will introduce us to what we mean by an attitude.

As we have seen, perceptions are selective and one of the factors that determine the selectivity is the *mental set* of the perceiver. At a football game the perceptions of the people watching the contest will vary. A coach will perceive errors made by the players; most of the spectators will watch the player with the ball; the old grad may complain that these young fellows cannot do the things the older heroes could, and many ladies will be watching the clothes of other women seated around them. Thus each person will tend to perceive the situation in terms of his mental set.

BEHAVIOR AND ATTITUDES

What are attitudes?

Two characteristics of attitudes are their emotional properties and their stability, or enduringness. Allport (1) says an attitude is a mental or physiological set, a preparation for readiness, to behave in a certain way in the presence of a particular situation.

It has been remarked by Bruner (2) that perceiving takes place in a "tuned organism." This suggests that a person is *prepared* for his perception. It is, therefore, often the case that we *want* to see something in the stimulus or situation, and this set takes place in advance of the perception. Two people observing the same stimulus may perceive it differently because of a different set, or attitude. Bartlett (3) some time ago found that subjects constantly used imagined settings and values for their perceptions, and Sherif and Cantril (4) reported that the more vague a stimulus the more important is the set in determining the nature of the stimulus. This is saying that the more vague (unstructured) a field the more significant the set of the individual becomes, and the less significant the stimulus itself.

In Chapter 9 we talked about structured and unstructured fields. Where an external field is well structured—for example, the shape of a house, or a table, or a conventional painting—the shape will tend to be

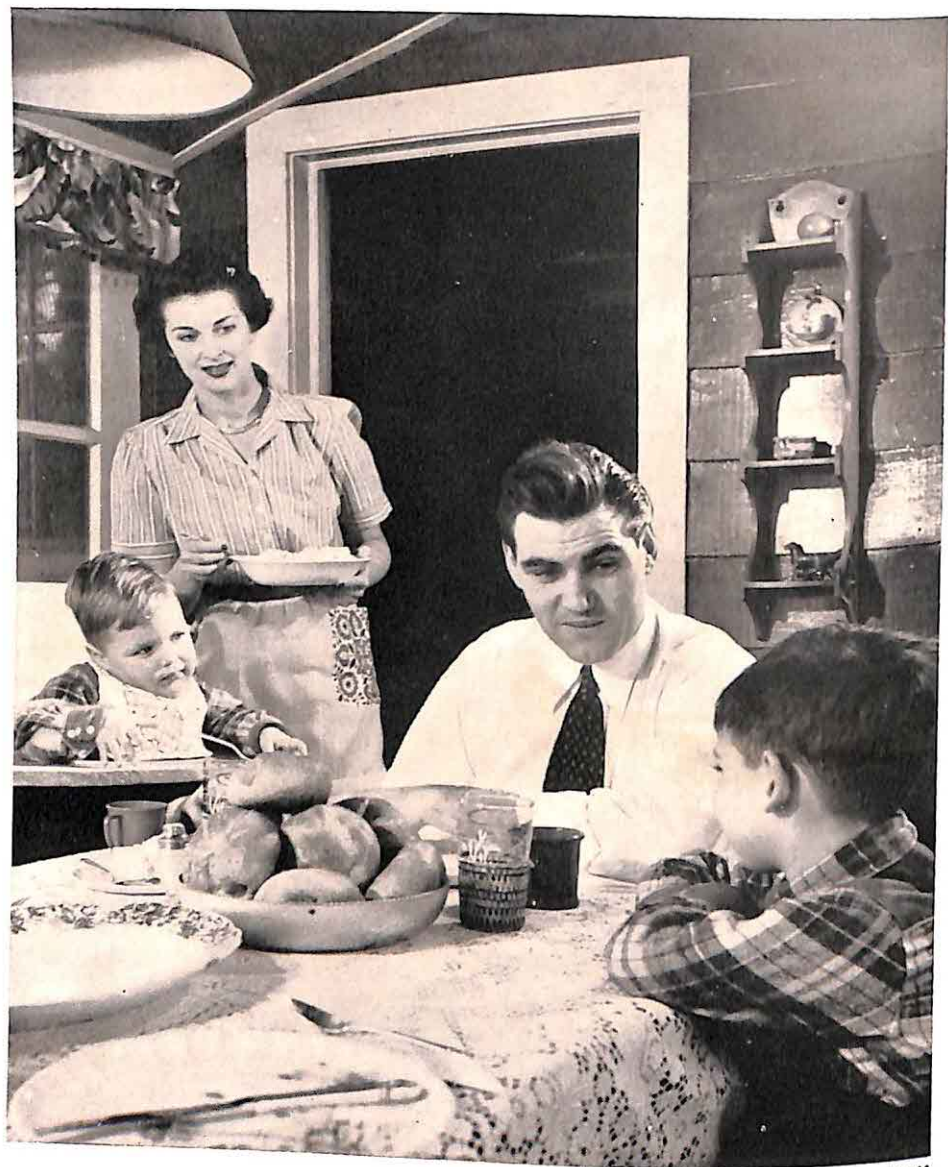


Courtesy LIFE Magazine
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ILLUSTRATION 29

These children are looking at a film on sex education. Are they equally prepared for what they perceive? Can you tell from their expressions their individual mental sets toward the subject?

Reproduced by permission of the Eugene, Oregon, Public Schools.



Philip Gendreau, N.Y.

ILLUSTRATION 30

Kind discipline induces security in the child as well as healthy respect for authority in later years.

perceived by most persons as house, or table, or painting. However, if the field is unstructured, as a series of inkblots, the person tends to utilize internal factors in the perception. One of such important internal factors is a person's attitudes (5).

Do attitudes endure?

That attitudes are enduring is seen in the way people continue to keep them. The child who has learned to dislike a certain race or church probably will continue the dislike. The individual who "nearly died" from eating tainted lobster will usually refuse that sea food thereafter.

Since a main characteristic of an attitude is its stability, it is obvious that the attitude will become a more or less constant factor in behavior. In fact, attitudes are extremely important in determining not only what, but how, we will perceive a situation when we encounter it. Thus if we are staunch members of the Democratic party we will tend to look on all Republicans as "black." Republicans can do no good. If we believe in ghosts, and think of them as objects to be feared, we undoubtedly will not relish the thought of spending a night in a "haunted house." We will respond to a situation in a way that conforms to the attitude we have established, and generally we will keep on responding in that way.

How are emotions related to attitudes?

Attitudes are enduring organizations, but beliefs also are enduring aspects of behavior. Is there any difference between the two terms? Many writers do not seem to distinguish between them, but some do. Krech and Crutchfield (6) claim that a belief is neutral, while an attitude is always "pro" or "anti" something. We may hold an attitude about the advantages of general education for college students which can make us debate the matter with considerable vigor, but the belief that H_2O is water does not arouse in us any great emotional reaction. It is for this reason that writers on the subject keep referring to the motivational importance of attitudes in one's behavior. Beliefs are more or less taken for granted, but attitudes arouse us to more activity because they are *emotionally charged*.

It should be noted, however, that every attitude contains within it a belief, opinion, or judgment about the object it favors or to which it is hostile. The important question is: Do our beliefs shape our attitudes, or

vice versa? The answer to this question becomes crucial when we try to form or reform people's attitudes.

When it is said that a person lets his heart rule his mind, we mean that for him emotions are more important than the intellect in behavior guidance. If this is so, it is frequently the case that the victory of the emotion is due to an attitude held by the individual. Because of the strength of a certain emotional state, perception of a situation will color our subsequent behavior so that we get what we are already anticipating. The persisting and emotionally made attitude is so strong that "logically" we are sometimes not in a position to judge the objective facts as they exist. Our attitude about beauty may determine whether a person will refuse to consider that beauty may be "only skin deep," and acting on the strength of the attitude the person can close his eyes to the actuality of the situation. In other words, emotion, rather than reason, is governing the behavior. This seemingly has been true in war as well as in love.

Just why attitudes are emotionally charged is seen if we consider how attitudes are formed in the first place. This we shall attempt to do shortly, but we may mention here that biological, social, and ego-needs are involved in their formation and maintenance. Since attitudes are so closely related to one's status in society, they constitute an important part of the self. When we experience something we have *feelings* about it, and the feeling, therefore, becomes an essential part of any attitude that may be developed.

Are all attitudes of equal value in behavior?

We do not hold attitudes about everything: many objects and events neither interest nor concern us. What attitudes we do have, moreover, may be intense or mild. One individual may hold a strong attitude toward religion, or atomic energy, or the Elks, while another will possess only mild attitudes toward these or any one of them. A sudden change in the total situation, however, may result in turning a mild attitude into a strong one. If you are now suddenly threatened with an atomic bombing, atomic energy may become a matter of great concern for you.

Attitudes cover a wide range of objects, events, and interests. No one knows exactly how *many* attitudes a person may have, and it is extremely difficult even to classify the *kinds* of attitudes one may have. Gordon W. Allport once listed sixty-five different kinds of attitudes. There are rational

and irrational attitudes, conscious and unconscious attitudes, everyday likes and dislikes as seen in our appetites and aversions, and evaluative attitudes about the worth or values of life and living. Attitudes, therefore, include biases and prejudices, stereotypes, and illogical viewpoints, as well as positive and logical evaluations. They may be verbal statements or physiological sets to behave in a particular way.

Are attitudes specific or general?

While attitudes may be confined to the specific stimulus with which they were first associated, it is far more likely that they are evoked in a number of situations or contexts different from the original one. A person who has been told that "foreigners are different" or who has disliked a certain specific foreigner can easily *generalize* or relate this attitude to other occasions. All foreigners, thus, are of low intelligence, wear dirty clothes, are good only for digging ditches, and have offensive odors.

The generalized use of attitudes means that one's attitudes are going to be employed continually in one's behavior, and consequently attitudes are of great importance in a person's motivation. As such they are close to the self, and some psychologists believe that one's total attitudes represent one's philosophy of life.

FORMATION OF ATTITUDES

How are attitudes formed in the first place? There is some difference in theory among psychologists. A behavioristic explanation of attitude formation would, we think, conform generally to Thorndike's law of effect. A response started by a biological tension, and which satisfies the tension, carries along with it a feeling-tone of pleasantness or unpleasantness.

Hunger is the tension. We have learned to satisfy the hunger by baked beans, because we have been given only baked beans to eat or because in some manner we are "rewarded" when we eat the beans, and we connect baked beans with hunger in a pleasant feeling-tone. Consequently, when we are hungry we hold a favorable mental set about baked beans.

Some attitudes no doubt are formed in this way, but there are also some attitudes which have been formed for other reasons than a biological need or tension.

How do needs establish attitudes?

The attitude we now hold about beans has been established for a functional reason; baked beans will meet the need we have, namely, to satisfy the tension of hunger we are experiencing. There are several points to be noted in this description: (a) Attitudes are learned forms of behavior. (b) They serve to satisfy our needs. (c) They are part of our perceptual processes in that they cause us to perceive a stimulus in terms of a like or a dislike.

Attitudes are learned. Young babies do not hold attitudes. They have not lived long enough to form them, nor have they had enough experiences to cause them to have likes or dislikes. All that matters for the infant is that a need be relieved in *any* way that works. But if cod-liver oil relieves his hunger at the moment, it does not mean that later he will hold a continuing and consistent attitude toward it. We are not born with an innate readiness to like or dislike cod-liver oil, nor do we inherit any of the attitudes we hold during our lives.

Suppose that you are adrift in an open boat, the survivor of a shipwreck. You have had nothing to eat for three days and are ravenously hungry. You are so hungry that you would gladly eat a raw fish or an uncooked sea gull, if either was available. You have a real need operating, and to satisfy it *any* food is desirable. Ordinarily we would not call this an attitude, because you have not learned to like raw fish or uncooked gulls, and if you had any real choice in the matter you would prefer some other means of satisfying the hunger tension. Your attitude concerning a particular and satisfying type of food, on the other hand, means that you *select* the food you want to meet the need of hunger when you have a choice. Likewise we select the particular eating place or restaurant when we can. Given a choice, therefore, we will perceive the way in which we can satisfy a need because of an attitude we already hold.

This, of course, can work the other way. If your mother shuddered and said that tripe was a most horrible dish, you probably developed an attitude against tripe which you hold to this day. As a matter of fact, the majority of our attitudes are formed on the verbal evaluations of others, and this once again stresses the importance of language in our behavior.

Can attitudes be formed from unconscious needs?

Tensions which continue to stimulate us may be beneath our level of awareness, and as a result we may not be conscious of the motivation for some of our behavior. Freud, for instance, believed that unconscious motivations were proved by the behavior of neurotics. Psychologists generally agree that childhood years are of great importance, and if this is so, needs which have been thwarted in childhood may be the cause of later anxiety. When any need remains unsatisfied, tension will persist, and this usually results in an uncomfortable experience for the individual. Thus a need which a person is not conscious of can continue to upset him and may distort his perceptions. For instance, the need to be accepted by one's peers may have roots which lie below awareness, and the subsequent feelings of inferiority may interfere with the perception of others in the environment. The student who feels inferior may perceive the teacher and the rest of the class as ever eager to ridicule him and may react by aggression or withdrawing behavior as the consequence. As such, his attitude toward the teacher and the class will be an unfavorable one.

The Freudians consider repression as the blocking of a perception of an instinctual demand and declare that anxiety hysteria, a neurotic condition, occurs, as a result. The person is said to be seeking an escape from a dangerous impulse by avoiding something in the external world which represents the impulse (7).

Ivimey (8) says that one's posture or bearing and rate of movement may be an unconscious attitude, as well as a general attitude toward life. A college student who had a compulsive need to dominate others encouraged others to come to him for advice and comfort, meanwhile holding himself as a server of all humanity. When he later failed completely in this work, it was shown that his "humanitarian" attitudes were only the outgrowth of his unconscious and neurotic needs.

There are many familiar illustrations of the effects of unconscious attitudes. The child who had been unfairly punished by a blonde nursemaid was shown to have retained and transferred his hostility to include all blondes later encountered in life. Slips of the tongue have been explained as examples of unconscious attitudes. Freud cites the case of an unpatriotic father who was reproaching his sons for participating in a patriotic demonstration. When the sons protested that their uncle had done likewise,

the father rejected this by declaring, "You are not obliged to imitate him; why, he is an idiot." Later the father tried to apologize by saying, "of course, I wished to say *patriot*" (9). Unconscious attitudes may have chronic physical effects. Colitis, for instance, may be an anxiety equivalent or a symptom of continuously repressed aggressions. What is so often called a "complex" may be an unconscious attitude, as in the case of an inferiority complex (10). Unconscious guilt feelings may be the basis of an established attitude. Stagner (11) found that a large number of persons described as "radicals" had experienced feelings of parental rejection, especially from the father, and had apparently transferred this hostility over to others symbolizing the father, such as male employers and heads of the government.

All these cases indicate that many of our attitudes may only be defenses erected to bolster a sagging ego. Many are no more than rationalizations, as in the old example of the poor workman blaming his tools. Whether the ego-needs are conscious or unconscious, they generally are sufficient to form an attitude. It may be necessary for John Smith to hold hard to the attitude that Bill Jones is a "stuffed shirt," since in Smith's eyes Jones may be intellectually superior to him and if he did not perceive Jones in this manner his self-image would be seriously threatened.

In what other ways are attitudes formed?

Many of our attitudes are toward races, religion, and people, and these have been formed without any biological need-reference. It is difficult to see how a biological need or tension results in the attitude held by Mr. X that he considered Negroes as intellectually inferior persons, or that Mr. Y was a "stuffed shirt." Yet there must be some reason for the attitudes in question.

Some attitudes are formed because of *previous experiences* with the object or person involved. A Negro cook may have by her dishonesty been the reason why we now hold a prejudice against Negroes. On the other hand, attitudes may have been *socially conditioned* by the culture. For example, anyone who says that baseball is an uninteresting waste of time may be considered an intellectual snob. We hold many attitudes because they are already *ready-made* for us. Examples of such attitudes are: education is the best route to economic success and social standing; old

people are entitled to careful respect; if you come from Boston, that city is the "hub of the universe."

What needs are operating in these and similar attitudes? For some of them at least, the need is to remain in the good graces of the society. What others hold to be important in the society is often expressed verbally, and we think of these evaluations as verbal attitudes. The verbal attitudes themselves are usually a continuation of social values which have become more or less standardized; they conform to established norms which the particular society has set up as acceptable. The need to stay in that society means that we must adopt the attitudes existing in the society.

What is the role of the culture in attitude formation?

People drive a Cadillac or a Lincoln, belong to a prominent golf club, would like to be listed in *Who's Who*, lunch at the Ritz, and pay much more than they can afford for a home in an exclusive part of town. Although these expenditures might be justified on the ground that what is obtained is of superior quality, probably most people do these things in order to achieve a feeling of prestige or status.

If our culture declares that certain visible evidences of success are important, we respond by trying to secure this evidence. We also adopt and maintain the attitudes that correspond to the tangible evidences. On swanky Park Avenue there will be few defenders of labor unions. People who live in glass houses cannot afford to throw stones.

The person will generally hold the principal attitudes of the culture of which he is a part. Students in an established and expensive college of high social standing held more pro-fascist attitudes than students in colleges which drew their student bodies from lower economic groups (12). Other studies have more or less confirmed this conclusion. Fig. 42 is some indication of the attitudinal values of seniors in a small New England teachers' college. Although the small number of cases might account for some of the differences, it appears evident that there is considerable diversity from the values held by a more general college population.

How the culture can affect and operate in the formation of attitudes is illustrated by the way different nationalities regard various sports. Most Americans look on bullfighting as brutal and cruel; Englishmen consider it unsporting to shoot a sitting duck but accept the shooting of a tiger from a perch on an elephant's back.

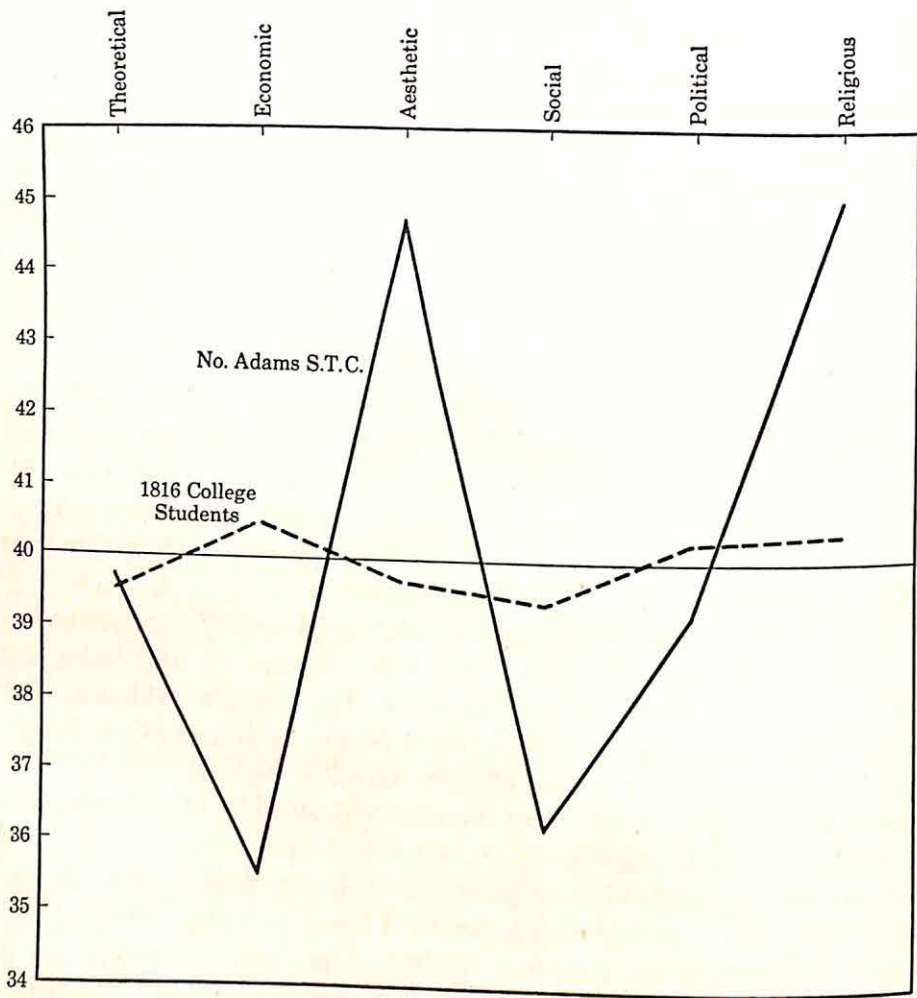


FIGURE 42

PROFILE OF VALUES. The solid line shows the composite profile of 35 seniors at the North Adams State Teachers College, and the broken line shows the mean for 1816 college students as reported in Gordon W. Allport, Philip E. Vernon, and Gardner Lindzey, *The Study of Values* (Rev. ed.; Boston: Houghton Mifflin Co., 1951).

However, if all attitudes were determined by the culture, presumably everyone in that culture would hold the same attitudes. That such is not the case is obvious, and other and individual needs and perceptions will exert their respective influences in the formation of attitudes.

What are introjection and identification?

Just to be a member of any group—of whatever kind—is to become subject to its demands. These demands may be as clear and specific as the constitution of a club or as nebulous as “public opinion.” Some of these demands are direct, as when mother says: “Be home by midnight, young lady, or you’ll hear from your father.” Others are problematic, as when a young lady wonders what she is expected to wear at Mrs. Y’s tea party. Some demands we fulfill with dragging feet and others with eager zeal. Indeed some demands made by others no longer seem to emanate from others, but rather from our own selves, and we are uneasy if we fail to heed their call.

It is this last phenomenon that is somewhat of a psychological puzzle. There is perhaps nothing hard to understand about how the commands and demands of others direct our behavior, our thinking, and our very ways of perceiving the world. These external demands are real forces that make themselves felt if we ignore them too long. But how do these demands become “my” demands upon myself?

The common answer in psychology is *identification* and *introjection*. It is held that, if I can identify myself with the authoritative figure in my life, for example, my father, or some powerful personage, then his wishes become my wishes, his demands my demands. This transformation leads to the introjection (the opposite of projection) of social demands so that they become ego demands (see Chap. 14).

These mechanisms of introjection and identification are used to explain much normal and abnormal behavior, but the question still remains as to how one person can identify with another, especially as on the Freudian theory this identifying of oneself with another may be wholly unconscious. Let us be clear. That identification takes place is a fact. *How* it takes place is not so clear.

Ask yourself if you can remember the first time that running around naked seemed wrong to you. Not the times when your mother told you it was wrong, but when you yourself felt it was wrong and shameful. Most

of us probably cannot remember, just as we cannot recall the moment when stealing, or lying, or being cowardly seemed to us as unforgivable both in others and in ourselves. This leads us to suspect that the important event probably occurred in our childhood and that possibly it was part of an experience that was emotionally strong and extremely unpleasant.

We may get some light on identification by examining an instance of it that occurs in our conscious experience. Suppose you have committed an act that somehow leaves you with the feeling that it was perhaps not the right thing to do. You may ask yourself whether it *really* was the right or the wrong thing to do. Did the act violate a principle that you held dear? Did it violate some command of some approved person? Will the act bring unpleasant consequences upon you? Do you fear punishment of some kind or other?

If it violated the command of some approved person, you might feel sorry that this had to be the case, but you still might not be ashamed for having done it. If you are afraid of unpleasant consequences you may be unhappy and call yourself a fool for inviting such consequences, but you still might not feel guilty or ashamed of your deed. Even if some great punishment was fairly sure to be forthcoming, you might not experience the feeling of guilt. This leaves us with the possibility that you regard the act as a proof of some *flaw in yourself which you yourself cannot tolerate and for which somehow you hold yourself responsible*.

Notice that we are not passing judgment as to whether you are justified in feeling as you do. You may be the victim of all sorts of illusions and hallucinations, of bad upbringing and what not, but the experience of guilt seems to demand this kind of reasoning, even if the separate steps are not clearly defined and perhaps not fully conscious.

The process of identification and introjection similarly may come about when we take the judgments of others about our acts as true judgments about our own ego-structure, about our real worth as persons. And the accusation that our worth is impaired is, in the mouth of the loved one, a threat that love will be withdrawn. But the need for this love is so great that any conceived threat to it is intolerable. If I think that the flaw is not of my doing, then there is nothing I can do to remedy it, hence there will be no guilt. The beloved's accusations can then be shrugged off as accusations against impersonal forces that shaped me, but not against myself. Hence if I am to feel guilty I have to regard the flaw as something *I am responsible* for and can perhaps remedy.

Introjection, therefore, is no more than learning the signs and symbols of personal worth from the people whose love we desire and fear to lose. This is not different from the way we learn so much else from our group life. And once we begin using the language of the group, then, of course, this learning proceeds apace, for we have value words popping out all over our speech and discourse, and what the group labels as good and bad we accept almost without question.

How does family life form attitudes?

We should have started our discussion of attitude formation with the family, since for obvious reasons the family is the first group we belong to and certainly until late childhood is our reference group par excellence. As a rule, children want very much to be in the family and want to realize the values to which their family is committed.

About the only general demands parents make on little children are obedience and response. As children mature, there is a demand to learn skills and later there may be duties to be performed in the household. Still later, parents demand that their children be a source of pride, financial support, or sympathy, and always there is the demand that the child adopt and give allegiance to their values, and those of their friends.

Modern psychology, especially the psychoanalytic school, places a great deal of importance on just how these demands are met by the child. Parents are kept busy and bewildered keeping up with the latest theories about how strict these demands ought to be and what they do to the child.

It is no wonder, therefore, that the child perceives his life as a series of situations that are strongly bounded by barriers, well-worn roads, explicit directions and warnings. It is not that parents ignore children's needs, but simply that they insist on their being fulfilled in certain ways. The need for food is to be filled not as the child might like to do—with candy and ice cream—but with foods he may or may not relish. The same is true for his need of friends, security, esteem, and achievement.

This ready-made life is not necessarily regarded as a cruel tyranny. Often the child gets comfort, a strong sense of security, and confidence precisely from these well-ordered roads and directions. A child who strays beyond the boundaries of his customary situation is more likely to be frightened than elated. The right proportion of assurance and danger

gives life its tension and excitement. But it has to be the right proportion, and unfortunately this cannot be prescribed in advance for any individual.

Obedience. What precisely the parents will demand from a particular child depends on so many factors and is subject to so many variables that it is almost hopeless to be scientific about it. About all we can do is to point out certain factors that operate generally, on all parents of a culture group. Thus all parents want their children to be obedient to them. This because it makes the care of them less arduous, because it connotes a submissiveness that reassures the parent of his authority, and because it guarantees a peaceful existence within the culture.

Obedience to parents has a high value in our culture. It is one of the standard filial virtues, especially in a social order that is still patriarchal in tradition and sentiment if decreasingly so in the distribution of power. Traditionally father is still the legal head of the household.

Negativism. From about the age of two, children display a resistance to the commands of their parents that is called negativism. So pervasive is this resistance that it almost becomes a speech habit, the child half performing the act required of him while he is still saying that he will not. Negativism has been explained as the assertion of the newly found self by the child, and there is no more definite way to assert one's self than by putting it into opposition to other selves—especially those selves who have been in the habit of issuing commands (see Chap. 13).

Respect for authority. Parents introduce the child into the authority-obedience situation, of which he will encounter numerous examples throughout the remainder of his life. How the child regards the commands of the parent, therefore, can be expected to shape his attitude toward other kinds of authority.

For example, if a child resents the authority of a parent will he accept the authority of a policeman or of his government or of the laws of his country? And why does one resent authority anyway? (a) It may interfere with one's wishes at the moment. A child who is playing happily in the mud resents the command to desist and do something else. (b) Or is it because the command forces the subject to regard himself as demeaned, as devalued, as somehow shamed?

We think our answer is to be found in the second factor. One may venture to guess that it is not the command that is resented so much as the way it is uttered and what it conveys to the child. If a command signals a contest of wills and strength, then it is not unnatural for the child

to resent a contest which, in the last analysis, he is bound to lose—just as he is bound to lose all other battles with constituted authority.

When adults speak of teaching the younger person a "respect for authority," do they mean a fear of it? A willing and even eager deference to it and its symbols? Or do they mean perceiving a command as issuing from a source so lofty in merit that it deserves obedience without question?

If children perceived their parents as all-wise and all-good they would perceive their commands as directives that ought to be obeyed even though it might be inconvenient and annoying to do so. Before a supernatural power such reverence is not hard to experience and to express, because the difference between the two is so vast that there is no question of comparison. But between any two human beings comparisons are always in order and always invidious. A command is willy-nilly perceived as an assertion of dominance by one person over another and is accordingly resisted or accepted, but never liked.

We get around this by arguing that the policeman is our servant and that the laws he is enforcing are the very ones we have ourselves made—through our delegates. This may be good political science, but it is not good psychology. The blustering policeman is, first of all, a man—a blustering, assertive man. He may be rude and insolent; his acts and gestures force his victim to devalue himself, to feel low and weak. What the policeman is exciting in the individual is not a respect for the law but a hatred for the policeman whom he would gladly see publicly disgraced if he could find some politically powerful friends to bring this about.

From what has been said we can hypothesize:

1. That resentment against authority—when it outlasts the normal negativism of childhood—is a product of conditioning *whereby a command has been associated strongly and vividly with an experience of anger and humiliation*. Subsequent commands, therefore, may arouse this feeling even when the person has no particular aversion to the commander or to his commands.

One employer was puzzled for a long time about the hostility of some of his best employees. He paid them well, he felt that he treated them well. What he did not realize was that he had a verbal habit that infuriated many of them. He would say, "William, you will bring me those files this morning." He actually meant nothing more than what we would ordinarily express by "William, will you bring me those files this morning?"

Or, "William, bring those files in this morning." But the word "will" in its peculiar position aroused resentment.

2. We may also surmise that resentment against authority is strongest in those personalities who are sensitive and self-centered. Only such egos would perceive a situation as humiliating simply because it was a *command* situation. For when a teacher says, "Write your name on the booklet," he is hardly reveling in a display of authority to humiliate any particular pupil.

For child rearing, these comments mean not that the parent must not command and not even that he should not insist upon obedience. For one thing, infant mortality would rise alarmingly if this were not the usual practice. But if the child is assured of the commander's love, it will be difficult for him to be humiliated by the command. He may fear the parent a little, he may be annoyed, irritated, and even angry with him, but he will not hate him. It is this hate which, getting into the viscera via conditioning, forms the hostile attitude toward all symbols of authority.

Love patterns. The family, however, does not stop its demands with obedience. It is concerned that the child learn to love objects or classes of objects that it itself holds dear. Psychologically we may say that the family wants the child to perceive the world with its own pattern of valences. It wants the child to have and to display affection to certain people in certain ways. It wants the children to desire good food, good clothing, good shelter, good marks, and all the other "good" things in life.

And how do the parents know what things are to be labeled good? Clearly they absorb this from the culture, from the "reference" groups to which they belong and from which they derive goals, aspiration, ideals, and values.

Most important is that we learn to love certain people, hate others, and be indifferent to everyone else. In time children are supposed to differentiate clearly among the love of father and mother, love of brother and of sister, love of grandparents, uncles, aunts, cousins, playmates, neighbors, sweethearts, husbands, wives. How important these love patterns are is emphasized by the unhappy plight of the homosexual who has learned what his culture regards as the wrong "love" pattern.

Hate patterns. Just as the family expects children to adopt its own definite pattern of loves, so does it expect an equally definite pattern of hates, aversions, and horrors. In a primitive society all strangers are poten-

tial hate and fear objects. In a civilized society matters are more complicated. One cannot hate indiscriminately, just as one cannot love indiscriminately. The family points out its own enemies as hate objects. Next come the enemies of the intimate groupings to which our family belongs, next the enemies of our community or our nation, and then of mankind in general. Finally, all the friends of our enemies are to be our own enemies.

It is perhaps necessary to remind the student once more that the propriety of hating certain objects or of loving them is not a matter that psychology alone can decide. What is important psychologically is that, whatever the culture, there will be some love patterns that are fairly uniform for the members of a given group or subculture and that there will be a similar common set of hate objects. Since within the group little deviation from these patterns will be tolerated, psychologically we can expect the individual to grow up convinced that certain objects are good and lovable and others naturally evil and hateful. No thinking about these matters will be necessary until contact or conflict occurs with a group that has other love and hate patterns. If the other group cannot be destroyed, thought may set in, and we have the birth of ethics in which we raise the question as to how our judgments of right and wrong are formed and justified.

We may ask, of course, how parents manage to teach this so well. The principle is rather simple, namely, those who love our enemies are our enemies and those who hate our enemies are our friends. To retain the love of the parent, it is made clear that the child would better love their friends and hate their enemies, and this in a thousand acts performed daily with more or less subtlety. It would be a stupid child who failed to learn to adopt the family attitude.

CHANGE OF ATTITUDES

While our attitudes are more or less enduring, they are not *necessarily* fixed and unchanging. The fact that they have been learned means that they can be changed. How this can be accomplished will generally conform to the way in which they were established, that is, on one's needs and one's perceptions of needs. Therefore, merely changing the individual's environment will not guarantee a change of attitude.

More specifically, attitudes may be changed by persuasion, by psycho-

therapy, and by re-education. Students, for example, sometimes change their attitudes about racial and religious groups different from their own, and one of the main aims of education is not only the formation of desirable attitudes but also the changing of undesirable ones.

Will attitudes resist change?

Because an attitude has been established to meet some perceived need, it will tend to be kept intact. Consequently, if the attitude appears to be satisfying the need, the individual will usually offer resistance to any attempt at change. This resistance may take numerous forms. For example, we are loath to join a group which holds attitudes contrary to ours. We do not care to read books and articles which are opposed to our existing attitudes and we prefer to mingle with those who hold the same attitudes as we do. With all these safeguards around our attitudes, how do we ever change them?

As we have said, we ordinarily do not. The child who needs to keep the esteem of his family, and is rewarded for his compliance, will have no reason to disturb the existing family attitudes. As the family is the voice of authority, he feels secure in holding the same beliefs as they hold and can avoid all risk of punishment by refusing to hold contrary ones.

However, suppose that an adolescent who has met his "one true love" finds out that his family has other ideas about his girl friend. Their attitudes regarding marriage are based on the idea that one should marry the boss's daughter and their son's light of love comes from across the tracks. Love is certainly an emotion, but an attitude is emotionally charged also; the resulting conflict may be a severe one or it may not, depending on the strength of the ego-needs involved. Either attitudes will be changed or the solidarity of the family group will be broken.

We have stressed the unity of behavior in this book. Thus, when a person's self-image is disturbed by a social attitude which now may not enhance this image, it is likely that the person will modify his image to conform to the attitude. This is often a good thing for the normal individual, but because the neurotic's self-image is a distorted one to begin with, unless he undergoes some successful psychotherapy there is little likelihood that he will change his attitude. People will remain hostile and unreasonable to him, and he will continue to perceive them in that manner.

Why are education and re-education vital to change?

Lewin (13) was of the belief that attitudes were changed by re-education plus an acceptance by a person of new group supports, "new points of reference," for the changed attitudes. Consequently, the person who leaves a group because he has come to perceive that the group attitudes no longer conform to his own needs new group support as some authority for his changed attitudes. It is hard to be courageous all by yourself, and human beings usually need other human beings to bolster their beliefs. A person who has left a church group may join another church or he may ally himself with a group of nonchurchgoers.

Formal education in the schools often is compelled to seek a change of attitude in its students. Many of the instances of pupils' failure to learn can be traced to a hostile attitude toward the school or toward the whole learning process as such. The attitude may have been formed for any one of numerous reasons, for example, lack of scholastic success due to lack of ability, lack of interest because a realistic goal was needed, a devaluation of the worth of the school by indifferent parents, and so on. As long as the pupil feels the need to maintain the hostile attitude he will not learn, or at best will learn in a haphazard and inefficient fashion. The modification of this established attitude will not be an easy matter for the school. Resistance will be offered to any change, as in all other attitude changes. The competent teacher will have to recognize the functional needs involved in the holding of the attitude and will have to consider ways to change the perceptions of the student about these needs. With some students some form of psychotherapy may be required, a subject that will be discussed in the next chapter.

Why are racial prejudices formed and kept?

Racial prejudice, one of our most serious problems, is an attitude. Although we tend to think of a strong prejudice as an attitude held by others in common, fundamentally the attitude is still an individual matter. Individual needs and perceptions are involved in a prejudice.

Since the prejudiced person is basically rigid in his perceptions, a prejudice may amount to an expression of one's personality structure. Thus a person full of repressed hostility can develop a prejudice against a racial group or a religious sect because that may be a convenient way of expressing his hostile feelings.

Many psychologists believe that frustration and aggression are closely connected; when tensions have accumulated to the point that behavior is seriously thwarted, aggression is used to relieve them. In this manner the ego is sustained. Directed against some group, the aggression is preserved in the form of an attitude, and this can amount to a rationalization. The individual needs underlying the frustration may be varied. Sadistic impulses, economic competition, greed, lack of proper social status in a community, anxiety or guilt, and a need to be accepted by the group may be some of the causes of the prejudice. Frequently these culminate in the "necessity" for finding a scapegoat, and racial intolerance is thus given a definite direction.

History is full of scapegoating, the persecution of the Jews by the Nazis being one of the most flagrant instances. In our sports-minded society the losing football coach is a prime example of a scapegoat for the ineffectiveness of his players.

Education is the most efficient method of erasing a prejudice, and this means again the change of an attitude. The sense of worth and achievement, so necessary in the behavior of a person, cannot be realized to the maximum in a social environment where racial prejudice is upheld. The truly educated and mature individual finds too many ifs and buts in a self-analysis to permit the continuance of this deception of the self.

Do words change attitudes?

Can a person be persuaded to change his attitudes? Persuasion usually means suggestion, and suggestion is often successful in what we call propaganda.

During wartime it is claimed that propaganda is more effective than bullets. In World War II the morale of the French troops in the Maginot line was severely weakened by clever Nazi propaganda, and a breakthrough was more easily achieved. Yet propaganda is not confined to military situations. It is employed by political parties, advertising agencies, and education, to mention a few of the organizations using it.

To most people propaganda suggests some undesirable or unpleasant process, aimed at the securing of a certain result. Of course, this is by no means the case. Propaganda is often used to achieve positive and desirable outcomes. We find campaigns employing propaganda to promote safety, health, and worth-while community ventures. To achieve

its aims, propaganda generally expresses itself through words or pictures.

Because propaganda seeks to change a person's attitudes, there is considerable emotional appeal in the material used. All the well-known emotions, especially fear, are utilized by the propagandist. We are informed that, if we do not use X toothpaste, our teeth will fall out; if we do not vote for this candidate for political office, grass will grow on our main streets. Pictures and words describing the heart-rending state of the widow and her small children whose departed spouse failed to provide for them by adequate insurance are used to worry and shame the husband. By such "subtle" means it is hoped that resistant attitudes can be changed, or to put it another way, that perceptions can be reorganized. That such methods pay off is proved by the continued use of these advertising devices.

The words of others, especially of those who seem to be experts, are responsible for the formation of many of our attitudes, and therefore we are quite capable of changing attitudes when others aim words at us to accomplish this end. If we can be induced to listen to what is said or written, these words may color our perceptions to conform to the desired attitudes of the speaker or writer.

SUMMARY

Because our attitudes are relatively permanent perceptual organizations they tend to persist in our behavior. Hence they are important in our motivations and are evidenced in the responses we make. In this sense they are the background for many of our responses. Since attitudes are emotionally charged they are always "for" or "against" something, and the individual tends to perceive the stimulus situation accordingly.

Attitudes are selective in that they serve individual needs; the needs can be biological, social, or ego-needs. Therefore, it is evident that functional factors operate in the formation of attitudes. At the same time, social or cultural factors help to shape our attitudes, so that the particular society of the individual will tend to affect the attitudes held and maintained.

Attitudes are learned, and consequently can be changed. A change of an attitude, however, is relatively difficult to accomplish, because the individual needs tend to remain as they are perceived. For that reason, attitudes tend to resist change. Because our attitudes are enduring ways of

perceiving situations, many social psychologists consider them the most important motivators of behavior.

PROJECTS FOR RESEARCH AND DISCUSSION

PROJECT I

Topic: Industrial motivation—the Hawthorne Study

Assignment: Read Elton Mayo, *Human Problems of an Industrial Civilization* (New York: Macmillan Co., 1934), Digested in Valentine and Wickens, *Experimental Foundations of General Psychology* (3rd ed.; New York: Rinehart and Co., 1949), pp. 226–29.

Questions for Class Discussion

1. Why has this study become a minor classic?
2. What attitudes were changed during the study? What caused them to change?
3. Show how perception and attitude are related in this study.
4. What were the needs of the five girls that contributed to the change?
5. How could the results of the study be applied to your own life in college?

PROJECT II

Topic: A test of your own values

Assignment: Read Allport, Vernon, and Lindzey, *The Study of Values* (Rev. ed.; New York: Houghton Mifflin Co., 1951). Take the test, score it, and complete the profile of values.

Questions for Class Discussion

1. In what ways are the scores of your test related to the attitudes you now hold?
2. Could there be more than the six types of values, as listed in the test, in one's personality?
3. Would these values tend to remain part of your personality, or would they change?
4. Could the type of college you are attending affect your scores? Explain.
5. To what extent can this test be applied to one's vocational interests, to marital adjustment, and to contentment in life?

PROJECT III

Topic: Attitudes—an experimental study

Assignment: Read M. Sherif "An Experimental Approach to the Study of Attitudes," in E. L. Hartley, H. G. Birch, and R. E. Hartley, *Outside Readings in Psychology* (New York: Thomas Y. Crowell Co., 1950), pp. 653-60.

Questions for Class Discussion

1. What is meant by autokinetic movement? How is perception related to a norm?
2. How did introspection enter into the study?
3. Describe the experiment used in the study.
4. Has suggestion a part in the formation of an attitude?
5. In what manner did the ego function in the experiment?

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- LEONARD, W. E. *The Locomotive-God*. New York: D. Appleton-Century Co., 1927.
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- STAGNER, R. *Psychology of Personality*. 2nd ed. New York: McGraw-Hill Book Co., 1948, Chap. XI.

Maintaining and Restoring a Healthy Personality

NORMALITY: PERCEPTION AND FULFILLMENT OF DEMANDS

Who is a healthy personality?

What is normal?

How can the healthy self control the appetites?

Why must social demands be fulfilled?

What is social maturity?

SELF-KNOWLEDGE AS THE KEY TO THERAPY

What is the role of clinical psychology?

How does psychology aid in the diagnosis of the self?

Can the individual describe himself?

What is psychotherapy?

What are some specific types of psychotherapy?

PERCEPTUAL REORGANIZATION THROUGH PSYCHOTHERAPY

What changes occur in the self during therapy?

Can a superficial kind of psychotherapy be effective?

What do we mean by character?

How is the ego related to character?

Is the healthy personality free?

Who is emotionally mature?

SOMEONE once remarked that the measure of a man is the size of the thing it takes to get his goat. Although everyone can reach the breaking point if frustrations continue to mount without some release, the majority of people enjoy reasonably good mental health. Nature has fashioned us remarkably well to bear the conflicts of living, and it is only after a bitter struggle that she will concede defeat. If

the human organism would not continue to defy nature, few, if any, would ever suffer a mental breakdown.

NORMALITY: PERCEPTION AND FULFILLMENT OF DEMANDS

A healthy personality, like a healthy body, is something to be cherished and maintained at all costs. Soundness in both mind and body is the established goal of the living organism. Both are necessary for the self-maintenance demanded for the maximum activity of the organism, and when one part is unhealthy the other is forced to compensate unduly. It is the whole organism that must behave at all times.

Who is a healthy personality?

Let us say some negative things first. A healthy personality is not found in an immature individual, tied to his mother's apron strings, ever ready to blame others and to excuse himself, or ready to express his own frustrations by aggression against a weaker opponent. Although the healthy personality does not carry a chip on his shoulder, neither is he a Caspar Milquetoast. He is not afraid to speak out when he feels he is right. He will say what he has to say without fear of criticism and without personal resentment.

Abraham Lincoln wrote to General Hooker in 1863, at a time when the Union was severely shaken and the people were discouraged and complaining after the defeat at Fredericksburg: "I have heard, in such a way as to believe it, of your recently saying that both the Army and the Government needed a dictator. Of course, it was not for this, but in spite of it, that I have given you the command. Only those generals who gain successes can set up dictators. What I ask of you is military success, and I will risk the dictatorship" (1). Aggression has a positive as well as a negative side. The too-passive individual is not a healthy person; the person with initiative, the right kind of aggression, has a purpose in life, and his behavior is accepted without question.

The healthy personality perceives the stimulus with attitudes that are not rigid. When our motives and goals are worth-while, our attitudes should help us achieve them; this is adaptation, and when adaptation requires perception and insight of our needs and the needs of others, we must be willing to respond accordingly. Because of what Miller (2) calls

the "psychology of ignorance," unconscious processes often operate to distort our perceptions. Since we do not know the truth, we make false interpretations about the environment so that gaps in our knowledge may be filled. When such ignorance exists, anxiety is aroused, and to maintain some kind of psychological homeostasis the person will jump to unwarranted conclusions.

While one should not cross bridges in advance since the anticipated threats often do not materialize, the healthy personality has some purposeful goal for his behavior. He knows what he can do and where he is going. He is interested in a number of things in life: his work, his social and recreational pursuits, his religious and ethical principles, and in contributing, in so far as he can, toward making the world one of progressive and worth-while values. Participation in group activities and being interested in and understanding others are vital to one's self-adjustment.

The healthy personality can laugh and see the humor in a situation even when it is perceived as mildly frustrating. Remembering the advice of Socrates, the healthy person knows himself: what he can do, what he cannot do, what he ought to do, and how he can accomplish these things. A few achieve these goals by their own efforts, others require assistance.

What is normal?

Much of this book has been devoted to the place of perception in human behavior. It has been our contention that one's perceptual processes, broadly considered, are basic to behavior; they are essential in giving organization and meaning to the responses made by the person and are necessary for any complete personality description.

Few, if any, psychologists would claim that the individual acts in a purely random fashion or that cause and effect have no application to behavior. More of them might deny the principle of purposeful behavior, and perhaps even more would minimize the place of the self in the analysis of our human organism. We think that life is meaningful and that human behavior has a purpose; we do not subscribe to the remark of Disraeli, that "youth is a blunder; manhood a struggle; old age a regret." If this is true, it is true in only a limited and narrow sense, because in every phase of life there is direction and reward.

In a previous chapter we briefly raised the question of normality as contrasted with abnormality. Most definitions of normality regard normal-

ity and abnormality as differences in degree only. Statistically this would make the *average* the normal. But suppose that the average man in a certain culture believes that it is normal to burn witches or to torture people who disagree with some of the ideas of the culture. Is this normality? If it is normal, is it healthy? If the average human being engages in promiscuous sexual behavior before marriage, is that normal? Is it desirable?

In describing human behavior, is psychology limited to determining a statistical average? Or should we also think of normality as an "ideal" rather than an average, but an ideal which is *capable of achievement*. If so, achievement of man's nature or essence as both a biological and a social organism should constitute the criterion of normality.¹

Can we understand the meaning of man's nature? Psychologically we can say that it is the purposeful integration of all his behavior in order to perfect the self. Self-perfection must include the fulfillment of biological needs, social needs, ego-needs, and an acceptance of ethical or religious values which give meaning and purpose to the universe. The process must continue in the face of frustration and obstacles.

How can the healthy self control the appetites?

To enjoy living, to experience the sense of achievement in life, and to perpetuate the species means that we cannot deny the importance of the appetites. Man's biological needs are an integral part of his nature, and cannot be separated from his behavior. Should we not, then, satisfy every appetite and pleasurable demand as quickly and as effectively as possible?

If satisfying every appetite as speedily and as fully as we can when the appetite arises is all that there is to life, then the answer is obvious: we would be foolish to do otherwise. Yet every thinking and mature person knows that this is not the answer. Man, by his very nature, lives in a human society, and as Socrates demonstrated to the Sophists, since the social life of man develops out of his needs, man must choose *what* desires are worthy of satisfaction and how they can be satisfied. As no man is sufficient unto himself, society is an expression of the harmony of the life of man and is necessary for his complete existence. Consequently, man is

¹ Maslow calls the "psychiatrically healthy man" one having an essential nature of his own; that "full health and normal and desirable development consist in actualizing this nature"—anything that frustrates it is abnormal.—A. H. Maslow, *Motivation and Personality* (New York: Harper & Brothers, 1954), p. 340.

motivated by his social needs as well as his biological needs and, through his capacity of *reason*, has recognized that it is for his ultimate good to regulate his desires and demands. The reality principle exists as well as the pleasure principle.

The more mature one grows the more valid is one's interpretation of needs. Even during childhood we are developing perceptions, attitudes, and values which will ripen into emotional maturity. Maturity implies the delay of immediate impulses, and a mature person considers before he leaps, with an eye to some better plan of action.

Cox (3), in her great study of genius wherein three hundred eminent men and women of history were studied as to their intellectual attainments, concluded that one of the most conspicuous signs of genius was a kind of maturity which permitted a choice of a worth-while goal early in life and a recognition that nothing should prevent the pursuit of that goal. This generally meant a successful control of the appetites.

A considered modification of the appetites would seem to represent normality. Normality suggests temperance. A reasonable control of the appetites permits the self to achieve aspirations and goals which give meaning to existence, and feelings of self-worth and self-esteem cannot be had when the appetites are instantly fulfilled. When satisfaction of every appetite is an end in itself, the thrill of accomplishment of the higher needs of life may be neglected or even may not be considered. Therefore, a healthy personality not only understands the appetites but has learned to control them.

Why must social demands be fulfilled?

Social values are essential to ego development, and as such are an important part of the self-image. The child must conform to the social standards or norms of his particular culture, and if he does not, social pressures grow so severe that his ego is impaired. The healthy personality, then, conforms to these social norms but at the same time satisfies his individual needs and expresses his developing independence. Can this be done?

It is beyond our province to seek an answer as to what is the ideal society, but if, as Stagner (4) says, "a mature society assumes the existence of mature personalities," then the society must allow the individual to develop his full personality without interfering with the personality develop-

ment of others in the society. The concept of a truly democratic society should permit such an ideal, the right of the individual and the rights of the group. Thus the healthy personality has insight into his own needs and the needs of others in his society, and respect for the rights of the self implies respect for the rights of others. Self-perception demands that the self be viewed in this social framework and that hostility, aloofness, jealousy, and other such personal self-distortions come to be recognized for what they are, social maladjustments.

Even on the child the social pressures are already exerting their influence. Conformity to parental authority is expected, and, as we have seen, parental attitudes are incorporated by the child as his own attitudes. The majority of these demands are not only reasonable but are necessary in the development of the ego, and the healthy personality structure is thereby given a solid foundation for further growth. As we must know, children lack the ability to govern themselves. Yet some parents are so unwise that they try to subdue *all* independence in the child. Since independence is a necessity for a healthy personality, this is bound to defeat its attainment or seriously delay its maturity. A child can love his parents and respect their lawful authority without developing an Oedipus complex, and if the thwarting of the developing independence continues, the self-concept will justify intelligent methods of surmounting the thwarting.

What is social maturity?

Social maturity also means the ability to get along with the members of one's own age group. The child or adolescent who "prefers" to mingle with adults suggests that he is unable to succeed with those of his own age. If the self is to be healthy, a person must be accepted by his peers: such recognition is closely tied in with self-esteem and the self-image. Studies of antisocial gangs have revealed that these groups serve to secure and keep social status and identity not otherwise provided more desirably for the individual (5).

There are numerous situations in life which, because they are the result of the environment, lead to frustrations. When the frustrations assume the proportions of real maladjustment we can call them *situational* maladjustments. For example, if you owe a considerable sum of money, and your creditors are pressing you for payment, you are going to experience

frustration and worry until the debt is paid; the child in school may feel frustrated simply because he is forced to sit in the classroom; the industrial worker may resent the necessity of performing a monotonous task every day in his life. Basically the immediate situation is responsible for the frustration, yet the debt must be paid, the child has to stay in school in order to get an education, and the factory worker must remain at his job if he is to provide food and shelter for himself and his family. Although these are problems involving the self, they are different from such personal problems as groundless anxiety about loss of health, being jilted in love, not succeeding in obtaining enough prestige with one's fellows, and being fearful of high places. In one the situation is the cause of the maladjustment, in the other the maladjustment lies within the self.

Though the layman thinks that all one has to do is to change the environmental situation in order that the problem be overcome, that is not the case. True, payment of the debt will relieve the worry about its non-payment and a manipulation of the environment can sometimes result in abolishment of tension, but life is too complex to permit us to move from environment to environment every time we experience tensions. We must face our situations with attitudes and perceptions that permit us to overcome our frustrations or at least to live with them in some degree of peace. Thus the child in school has to learn that it is for his own good that he suffer the confinement when he wants to rush out on the playground, and the worker has to develop other interests and values that will compensate for his monotonous work.

A healthy personality can mingle well with others, enjoys the company of others, and is liked by others. The self cannot develop to efficiency in a vacuum, and an active membership in certain social groups is desirable. In addition to this social identification, a more intimate relationship with one or more persons who act as confidants is a useful means of maintaining good mental health; these people will listen and offer advice when the need arises. It is for this reason that we have a number of friends but only a few "close" ones. They serve as safety valves for our deeper ego-needs.

SELF-KNOWLEDGE AS THE KEY TO THERAPY

How does one ever get to know oneself? Self-knowledge is *insight*, but, as Allport declares (6), few of us are willing to admit that we lack insight;

we insist that we know ourselves intimately because we *are* the *selves*. Our self-attitudes are extremely difficult to alter, because we will consistently try to maintain the self-concept we have erected. As we have indicated, in order to protect the ego we have constructed vigorous defenses around it: we rationalize and overlook our shortcomings and emphasize our strong points. In this shuffle insight is frequently distorted.

Horney and other writers interested in this problem have concluded that one's needs, perceptions, abilities, and goals are frequently incomplete. In the struggle to maintain the image of our idealized self we hold on to perceptions and attitudes which exemplify "phony" goals and sham values. Often these are fictional and highly glamorized versions of adolescent desires, furthered by a culture devoted only to satisfying the appetites.

What is the role of clinical psychology?

Clinical psychology is a rapidly growing area of psychology. The clinical psychologist works with children and adults in the attempt to develop their self-knowledge. Most often his work is performed in some child-guidance or mental clinic or hospital. These clinics are places where the emotionally disturbed, the mentally deficient, and the educationally retarded may receive therapy and help. Not only is the individual aided, but the resulting clinical research is used to assist with preventive measures. It is a truism of mental hygiene that prevention is the aim rather than cure.

Both diagnosis of the problem and therapy in overcoming the problem are the goals of the clinical psychologist. Mental testing, personality diagnosis, ability testing, and various methods of psychotherapy are undertaken by the clinician. Because of the importance of this work and the necessity for competence in its administration, an adequate training is demanded and the requirements are growing stricter every year. An increasing number of school systems are employing school psychologists, whose duties include the administration and interpretation of tests and methods of presenting this self-knowledge to the students. The current philosophy behind guidance is the recognition that the whole individual and his needs must be explored.

How does psychology aid in the diagnosis of the self?

Many methods have been devised to diagnose the individual. Autobiographies, case studies, ratings, and an expanding number of tests have been employed.

A *projective technique* is a test that seeks to describe the deeper layers of personality by having the individual project his perceptions, needs, attitudes, and frustrations as they exist, stripped from the protective mechanisms of the idealized self. The result has been styled a projection of one's "private world."

So that the true description of the personality may be secured, the test material should be unstructured, that is, it should be sufficiently ambiguous to allow for an interpretation which does not depend on the form of the material, but which permits perceptions arising from the needs of the person being tested to express themselves. An illustration should make this clearer.

At the present time the best known projective technique is the Rorschach test, developed by Hermann Rorschach in 1921 (Illus. 31). The test consists of ten inkblots which have been standardized to permit more or less uniform methods of interpretation. An inkblot is an unstructured stimulus, one which allows the subject to project his personality "into" the blot; consequently, every individual will see different things in a series of blots. A blot, or some portion of it, will be seen as an elephant by one person, as a butterfly by another, as a girl dancing by a third, and so forth.

Not merely *what* is seen but *how* it is seen is important. For instance, some of the blots are vividly colored, some are black and white, and whether or not the subject uses color in his responses is an important part of the interpretation. Responses which depict movement, employ shadings, pick out details, and make various other descriptions of the blots are all used in the analysis of the personality. Remarks made at the time by the subject also are interpreted by the examiner, and the content itself is frequently interpreted for its symbolic meaning. The final result is a Gestalt of the existing personality under scrutiny. Continuing studies have refined many of the original ways of interpreting this test, and the Rorschach is no longer on the defensive as a clinical tool of real diagnostic value.

The Thematic Apperception Test, usually called the TAT, is another widely used projective technique. Developed by Murray, this test is com-

posed of a series of thirty pictures, many taken directly, or slightly modified, from magazine illustrations. The aim of the TAT is to stimulate and analyze fantasy from perceptions aroused by these somewhat ambiguous picture stimuli by having the subject tell a story about each picture. The subject is urged to say what the people in the picture are doing, saying, or thinking. Conscious and unconscious needs, defenses, and conflicts of the subject are sought to be disclosed. For instance, Murray has listed such biological and psychogenic needs as acquisition, achievement, dominance, deference, rejection, and the like, as included in the personality structure of the subject. In addition, there is the "press," the forces in the external environment as they affect the subject, the "thema," or plot, of the story told, and the outcome of the story, all entering into the ultimate interpretation.

Projective techniques, for the most part, employ psychoanalytic concepts and terms in their interpretations.² While no test is a perfect measuring rod, clinical psychologists have favored projective techniques, and they are thought to be the best available tools for personality research. In spite of objections, largely due to the danger of subjectivity in interpretation, projective techniques have become valuable in diagnosing personality.

Can the individual describe himself?

Self-inventories are methods employed by the clinician and counselor where the subject is asked to answer questions about his personal experiences, his likes or dislikes, and his emotional reactions. For instance, he is asked to state whether he daydreams very much and whether he often feels "blue." There are a number of these standardized inventories available, and they are widely used. If answered honestly and as completely as possible by a subject, they are valid means of assisting in the personality diagnosis of the individual, but their disadvantage often lies in the lack

² A third projective technique and one of more recent origin is the Szondi test. In this test a series of photographs of forty-eight men and women representing various pathological types are shown to the subject. The subject is asked to state which of the photographs he likes and which he does not like, and this procedure is repeated on at least six different occasions. Under the Deri method of interpretation the final selections are evaluated in terms of the subject's basic needs, expressed in four vectors and eight factors corresponding to "interdependent psychologic need-systems or drives." A Gestalt of personality is offered as the result.—S. Deri, *Introduction to the Szondi Test* (New York: Grune and Stratton, 1949).

of understanding of the real self and the rather human error of trying to give socially acceptable answers rather than the ones the person actually would give.

One of the more useful self-inventories is the interest inventory, such as the one devised by E. K. Strong. The Strong Vocational Interest Blank (Stanford University) has forms for both men and women and is especially designed for college students and young adults seeking help in their vocational choices. The subject is asked to state his likes or dislikes for a large number of vocations and to indicate his preferences concerning various situational events which are part of various occupational fields. For instance, "develop the theory of operation of a new machine," "sell the machine," and so on. When scored, the individual profile shows both strong and weak interests in specific occupations, as well as the strength of interest in a number of groups or patterns of interests. The theory behind such a test is that a person's interests suggest his abilities, and if he has a lasting interest in some occupation he probably has enough ability to succeed in it. A knowledge of one's abilities is a valuable way of knowing and understanding the self.

Recently attempts have been made to appraise personality by evaluating a person's performance in a group situation. A group of persons discuss a topic for some time in the presence of a panel of examiners, and a rating is made at the conclusion of the discussion. This kind of evaluation permits the examination of the individual in a social setting, an attempt to describe the personality in terms of its social factors. Although personality tests have not achieved the acceptance and standing of intelligence tests, considerable research is being performed in the hope that a comparable measure of validity can be secured.

What is psychotherapy?

Therapy means treatment or cure, and psychotherapy means mental healing. Since ancient times man has employed some form of psychotherapy in the attempt to rid himself of tension and emotional strain. Catharsis, talking about one's problems and conflicts, is a very old form of psychotherapy. Nearly everyone is helped with his problems if he can discuss them with a sympathetic and experienced listener, whether advice is furnished by the listener or not.

One of the commonest forms of therapy is *counseling*. In the *directive*

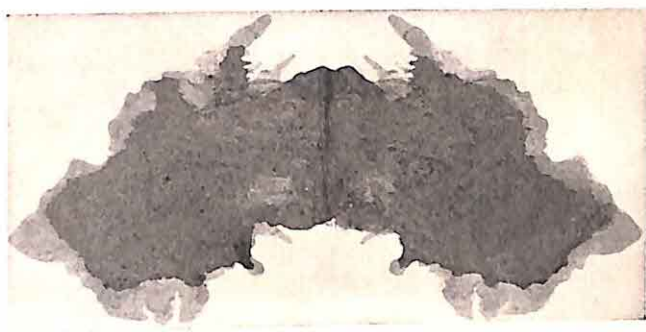


ILLUSTRATION 31

The type of inkblot used in the Rorschach

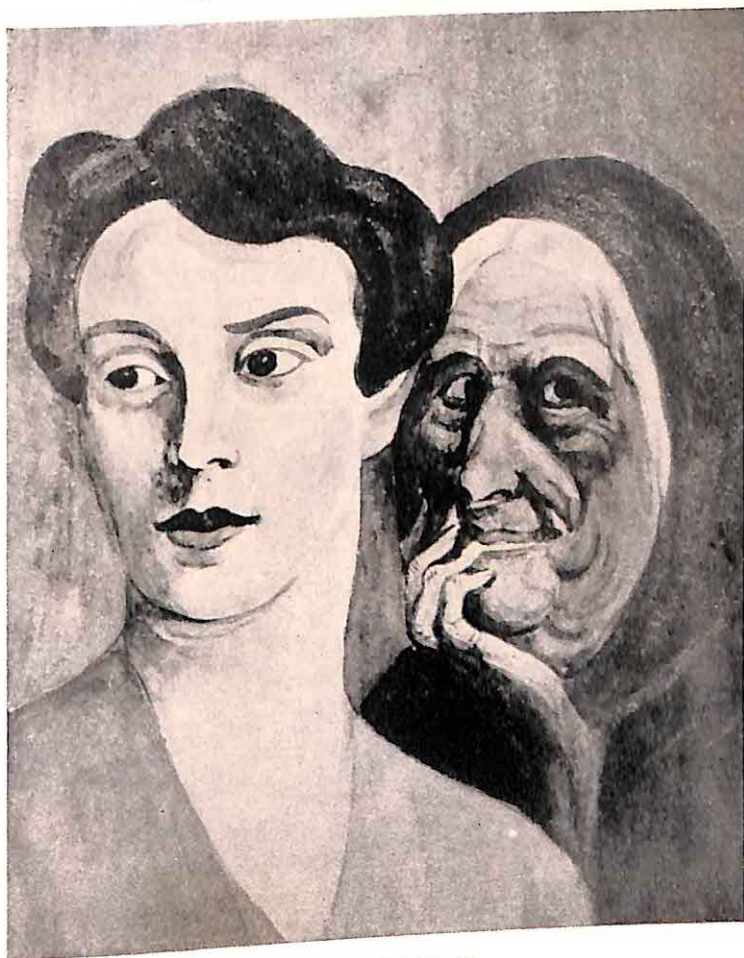


ILLUSTRATION 32

A picture from the TAT

Reprinted by permission of the publishers from Henry Alexander Murray, *Thematic Apperception Test* (Cambridge, Mass.: Harvard University Press, copyright, 1943, by The President and Fellows of Harvard College).

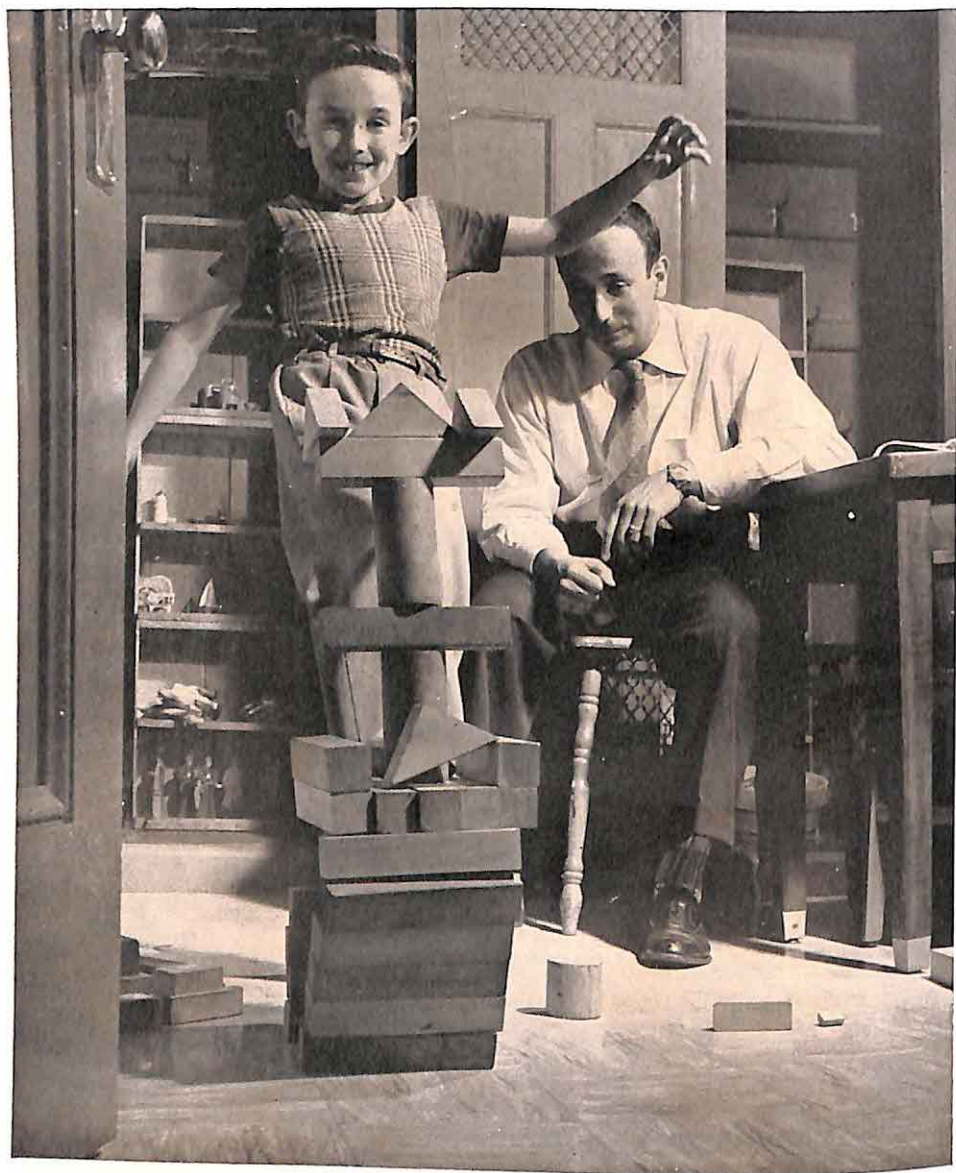


ILLUSTRATION 33

In play therapy, a child vents his hostilities and angers as he destroys a block construction under the observation of a psychiatric case worker.

Photo by Larry Keighley, reprinted courtesy of the *Saturday Evening Post*, copyright 1953, The Curtis Publishing Company.

method this takes the shape of reassurance, furnishing information about the problem, and giving advice to the subject. Where the problem is easily disclosed and is not too severe, this form of therapy is often successful. Guidance counselors have used this therapy to a considerable extent.

Another type of counseling is *nondirective* therapy, or *client-centered therapy*. As developed by Carl Rogers, the therapist listens to the subject but does not offer advice as to how to solve the problem. According to this theory of counseling psychotherapy deals primarily with an organization of the self. Therefore, it is said that if the subject can do the talking he will gradually begin to perceive the results of his behavior and to understand its significance. A new perception of the self will bring a clearer understanding that he is not what he thinks he is. At the same time the therapist also begins to perceive the self as the subject actually is and accepts the subject and the way he perceives himself. Acceptance by both parties furthers a reorganization of the self (7). We shall consider this more specifically in the last part of this chapter.

The Freudian method of therapy, *psychoanalysis*, has been previously discussed; it is, of course, an important method of psychotherapy and its influence has spread through the entire area of personality study, especially in the deeper layers of personality structure and interpretation. There are, however, some reasons why psychoanalysis is at present a limited therapy. Although there are approximately seventy-five hundred psychiatrists in the country, fewer than nine hundred are prepared to employ psychoanalysis. Secondly, the average analysis requires a minimum of 250 hours, which means that considerable expense for the patient is involved in the treatment.

What are some specific types of psychotherapy?

To a lesser degree the therapy known as *psychodrama* is employed in the treatment of emotional disorders. Developed by Moreno, this is a form of catharsis in which a subject acts out his problems on a small stage with the help of the therapist and other members of "the cast." Scenes are enacted which are similar to the behavior of the subject's concept of his self, and in his role playing the subject attempts to find a more realistic solution to his problems than the ones he has been accepting.

Play therapy is the term applied to a rather wide variety of situations aimed at aiding disturbed children. The tensions of these children are per-

mitted open expression in play sessions with the therapist in a room especially designed for play. The therapist usually allows the child to express himself as he wishes, which in itself is often enough to affect a successful change in behavior. Along with the play therapy it is frequently necessary to give some psychotherapy to the parents, since they are often at the root of the child's problem. In client-centered play therapy the child's attitudes are sought to be modified by faith, acceptance, and respect in the therapeutic process (8). Children are allowed and encouraged to express hostile, anxious, or fearful attitudes by playing with such media as paints, clay, and water. Dolls, furniture, toy soldiers, balloons, and the like also are used, and the child may threaten, punish, or destroy those which he says are persons or objects feared or hated by him. Gradually in the course of the play the child becomes more independent and achieves a more realistic perception of his behavior. It is hoped that when the attitudes change the emotional symptoms will disappear.

In child-guidance clinics such factors as the intelligence of the child, his educational level, and his school maturity are important in diagnosing the problem. Often remedial work is an effective part of the therapy, especially remedial reading, and these corrective services should not be ignored by the therapist. By such *educational therapy* attitudes about school can be changed by furnishing the child some measure of success in the classroom. Sometimes this is all that is needed.

Less employed than other therapies, but offering a ready means of self-evaluation, is *bibliotherapy*. Moore (9) has shown how this method of using books can produce worth-while results. The therapist induces a child to read a book on his reading level, one which is interesting to him and which in some way meets his needs or problem. Later the book is discussed with the subject from the point of "what did you get out of the book?" in the hope that the principles and ideals of the hero in the story may be accepted by the subject.

Group therapy is the name given to activity, play, or interpretive therapy that is undertaken by more than one person and presented in a group situation. It is used with both children and adults and is growing in favor with clinicians. Found valuable in many cases, particularly where the group is homogeneous, it is said that its disadvantage lies in its not being able to go deep enough into the personality, as is possible in an individual therapy.

There are other forms of psychotherapy, but the ones mentioned are

the more common ones employed in a clinical situation. With time it is expected that improvements will be made and that better results will be obtained.

PERCEPTUAL REORGANIZATION THROUGH PSYCHOTHERAPY

The final outcome of psychotherapy, says Rogers, should permit the individual "to see things differently" (10). This means that the person will have reorganized his perceptions of his environment, of others in his personal environment, and especially of himself. Insight will have been secured. There should be a higher correlation between the perceived self and the self-ideal. Although we often do not understand why the therapy is successful, it frequently is, since noticeable changes occur in the behavior.

During and after therapy, Rogers declares (11), a person tends to accept himself, to perceive himself as a person of worth, to recognize his abilities and limitations, and generally to perceive the self more objectively. Knowing that he will not be scolded or punished, the person will gradually reorganize his perceptions of himself and will learn that his old perceptions are the causes of his problem. Thus both insight into the problem and confidence in one's ability to overcome the problem are the desired results.

What changes occur in the self during therapy?

We are well aware that attitudes toward the self are not easy to change. We are reluctant to change any attitudes. We have seen that the individual will go to extremes to protect the self-concept, and as long as the need exists to keep the self-concept he will not change his established attitudes.

If therapy is to be successful, a more objective perception of stereotyped or hostile attitudes must be effected.

The individual must learn no longer to make incorrect generalizations about others and a bias must be recognized as an illogical attitude. For example, some of the attitudes and values of a minority group may now make sense to the person for the first time.

During therapy attitudes toward the self are usually changed to a considerable extent; self-feelings become more positive, with a decrease in negative self-feelings and hostile attitudes (12). There is an increased

tolerance for frustration and behavior becomes more mature. Because of these new perceptions, the person himself has changed and can now see that it is not the stimulus but his evaluation of the situation that has caused his problem. Both personality and behavior are reflected in this perceptual reorganization.

Actually there is no need to make a sharp distinction between the process of perception and personality; human behavior is the result of both. It is through perception and cognition that an understanding of the self is possible. As the individual develops, his perceptions and understandings deepen, creating the personality structure that is capable of meeting the demands of living with a dignity befitting the human organism. It is the *individual himself* who holds the key to his behavior, and the choice of normality or abnormality in the last analysis is his own. True, not all men are born biologically or economically equal, but everyone not denied the minimum basic requirements for adjustment to living can achieve a satisfactory personality which we have called healthy. Insight into the self, sometimes demanding a reorganization of the self, constitutes the keystone of personality structure. This kind of insight means that the person *himself* recognizes and accepts his behavior, not merely that the reasons for the behavior are explained to him.

Because a neurotic is full of anxiety, his self-esteem must be rebuilt and he must find a new feeling of self-confidence. Probably only through such a procedure will he be able to surmount his anxiety.

Can a superficial kind of psychotherapy be effective?

Psychoanalysis is usually considered as a "deep" therapy, and non-directive counseling also seeks to disclose the deeper levels of personality structure. Directive counseling, suggestion, reassurance, educational therapy, and group therapy are generally viewed as psychotherapies which can be called a "surface" kind of therapy. Can these be of real benefit to a person?

Where the roots of the problem are buried in the unconscious mind and where the individual has so completely adopted an infantile self-perception that he is unwilling or unable to modify it, some kind of psychotherapy which digs deep into the personality seems necessary; telling a person not to worry and that he has no problem is not going to help very much in its solution. On the other hand, such kinds of directive counseling as the furnishing of vocational advice and information, assis-

tance in overcoming scholastic difficulties especially in reading, and talking out problems in a congenial group where the individual finds out that others in the group have similar problems and are composed of the same cloth as he is are frequently quite effective ways of helping a person.

In what he calls basic need-gratification, Maslow (13) has shown that self-actualization can be obtained by gratifying the more basic needs of safety, belongingness, love, and respect. If this occurs, therapy is shorter, and there may not be the necessity of a long, more involved type of deep therapy. It has been found that in many cases the fact that the individual has been accepted into a clinical situation is sufficient to give that person a feeling of worth and recognition. The very fact that the individual has been treated with consideration and respect is often the means of changing his attitude toward others. In much the same fashion marriage has frequently aided a person in achieving the measure of safety and self-recognition that is so necessary for his well-being. If the individual really wants to get better, and if there is some person or other agency available for encouraging or assisting him in this, he can usually succeed.

Psychotherapy, then, may take on many forms, but none of them can claim an exclusive formula for successful cure; consciously or unconsciously the individual can perceive that his needs are capable of being understood by a sympathetic therapist, and more often than not some measure of change in behavior is the result. As such, psychotherapy is largely preventive, seeking to prevent the recurrence of the maladjusted behavior.

What do we mean by character?

Although *character* has various connotations, generally these all imply an ethical meaning. When we say that a person has "a good character" we mean that certain moral traits, such as honesty, truthfulness, and the like, are readily evidenced in his personality structure. Obviously the healthy personality must possess good character traits, since otherwise he could not live in a society which values moral codes and customs. Therefore, most writers think of character as the moral or ethical part of the total personality.

Unless we can do more than make this generalization, character has not much meaning. For instance, is the person of good character one who will not steal but who may nevertheless lie on occasion? Further, will he refuse to steal money from the cashbox but will not hesitate to steal from his

classmates by cheating on the final examination? Or is there some general trait or honesty pattern underlying all his behavior no matter what the specific situation?

Hartshorne, May, and Shuttleworth (14), in a study which has become famous as the *Character Education Inquiry*, found that children would cheat or steal in one situation but not in another; that what we think of as character apparently is specific, not general; that specific experiences, pleasant or unpleasant, in a person's past will determine what he will do when confronted with the stimulus. If the results of this study are correct, then it is difficult to see how character as an essential part of personality can be taught.

Many objections were raised to this doctrine of specificity in character analysis. Allport (15) particularly objected to the contention that no generality could be found in character. He declared that "ethical rather than psychological conceptions were used, and that although children may not be consistent in character, *socially defined*, they may be quite consistent in their own personal attitudes and traits." Stagner (16) has presented a plausible explanation why one need not accept the results of the study at face value to deny the concept of generalized character. A child, he says, may be consistent in conforming to adult standards of honesty and *also* in conforming to child group standards.

How is the ego related to character?

The individual of good character will have developed a self-image consistent with the rest of his personality. His ego-needs—self-worth, self-esteem, self-achievement—will have continuity; a departure from these will cause him anxiety and feelings of guilt. His conscience will trouble him. This is experienced time after time.

In the teaching of character Ligon (17) has pointed out that it is impossible to teach any concept until the maturation of the child allows him to understand it; consequently, character development is a gradual matter. If ego development takes time, so does character formation. Those attitudes which suit his level of maturity can best be taught the child, and if we are to develop good character traits we must be patient. In the school, character education has never achieved the position of importance that it should have, and this is a fertile area of study for all educators.

Apparently what is meant by character is a combination of all perceptual processes, plus their corresponding attitudes, plus the factor of

persistence in carrying on these processes. Character can be called integrity and, as such, is theoretically equivalent to the healthy personality.

Is the healthy personality free?

We are used to the idea of the "four freedoms" and we hold that they are essential to our concept of a democracy. We like to think of our society as a free society, yet any society is no freer than the individuals that compose it. Freedom implies independence of action and thought, but independence also means overcoming our dependence on the thinking and decisions of others. To be really independent one must know oneself, and self-knowledge means an unimpaired ego-structure.

Since we become aware of the self when we discover that we are not the same as the environment and that we are not the all-powerful entity we imagined, we come to realize that we must select; while we cannot do everything we desire, we can accomplish our carefully *deliberated* aims. What is freedom? "It is precisely this possibility of varying our responses to forces that we do *not* control" (18).

Human behavior is *purposeful* behavior. Tensions raised by external and internal stimuli demand satisfaction in some fashion; the whole organism will be involved in resolving these tensions or needs, and behavior is the means by which these needs are satisfied. Thus we can say that behavior is directed toward some goal; it is motivated behavior and not random. The ways in which the goal is perceived by the individual will go far to name the appropriate responses he will make, but the very process of perceiving means that the individual is selecting. This selection implies not only what stimuli will be perceived but also how they will be satisfied.

Unless we are thrown into jail or strapped in a harness, we can vary our responses, we can discriminate in our perceptions, and we can interpret our needs in the light of the entire situation. We are not laboratory rats which have been placed in situations from which there is no escape and are offered only impossible methods of discrimination, with neurosis the inevitable result. True, we can find ourselves in an analogous situation but we usually get there by our own efforts, we do not have to be there.

The healthy personality is free because it has to be free. In the healthy person there is freedom of choice regarding the appetites; there is freedom regarding the ego-needs of self-esteem and self-achievement. Self-

knowledge means that we can perceive and understand our desires and can change our attitudes when we perceive that we should. These are things which we *can* control. To put it negatively, the neurotic does not want to be free; he wishes, unconsciously perhaps, to be dependent, to be excused for his actions, to retain the pleasure that goes along with feelings of dejection and the concern of others. There is a saying that one may have had "a favorable experience with illness" so that one no longer wants to get better. The unhealthy personality does not want insight, and refuses to seek it. Consequently, he remains unhealthy. The *will* to get well again would seem to be an important part of any therapy.

In previous chapters of this book we have shown that we can make errors of perception; it is not that the stimulus is in error, it is our perception of the stimulus that is faulty. Through reason we can control our desires, we can lower or raise our level of aspiration, and we can reorganize the self-concept when necessary. The better we know the self the clearer will be our perceptions and the required reorganizations. Undoubtedly it was something like that which Shakespeare had in mind when he wrote, "To thine own self be true, and it must follow, as the night the day, thou canst not then be false to any man."

Who is emotionally mature?

If a person allows his emotions to blind him so that his attitudes and his thinking are rigidly constricted or distorted he is not free; he is a slave to his own narrowed perceptions and he moves uncertainly in a world of doubts and imagined disasters. Actually, of course, he is unhappy. Emotional maturity means that the person will reorganize his perceptual processes when for some reason life does not move smoothly for him; to use a common expression, he can "take it in stride." Unrequited love is a painful experience and so is the death of a loved one, yet the healthy personality is able to absorb these sorrows in time and adjust his behavior to newly evaluated goals. Purposeful behavior means not only goal-directed activity but also the capacity to reorganize the activity when it is blocked and to erect new goals when necessary.

The person who is emotionally mature has a number of interests beyond the satisfaction of the few basic needs necessary for existence. He realizes that love and affection, tolerance and understanding, and the sharing of his efforts to help others have positive values that can contribute to his feeling of well-being and contentment.

This, of course, requires some insight. Maturation suggests an understanding of the fact that the temper tantrums of the child or the misconceived anger of the adolescent cannot successfully meet the demands of adult living. Emotional maturity is not an easy process nor a rapid one; it requires much education or re-education, and for some it is a painful procedure. Basically it means the gradual, if slow, incorporation of worthwhile values, and the perception of these values as goals to be sought and maintained.

CONCLUSION

We have reached the end of our initial inquiry, what is human behavior? For many students this will constitute their only course in psychology, for many others it is only the beginning. Some will take courses in child and adolescent development and in educational psychology; fewer will major in social, clinical, or industrial psychology. Using psychological backgrounds, some will pursue the studies of teaching, social work, guidance, statistics, or medicine.

Like philosophy, psychology is basic in one's education. Since its subject matter is human behavior, it reaches into all areas of experience and study. The author, the clergyman, the businessman, and the educator must understand behavior as well as the professional psychologist. What a person needs, what perceptions he has about his needs, what attitudes he forms, and why he responds as he does are all embedded in the science of psychology. Psychology, of course, cannot supply the only answer to the inquiry, but it does furnish a tremendously important part of the answer.

If man is more than an assembled organic machine, then we must not be too critical if the psychologist has not as yet found all the answers. It is a far more difficult task to analyze a human being than it is to analyze chemicals; even the physical scientists are finding that it is not a simple matter to pin down molecules. As Vannevar Bush says, "Science does not always lean on the deflection of a needle or the dip of a balance." If progress is slow, it is nonetheless being made.

Since the chief aim of all science is to *understand* that which it investigates, psychology cannot limit itself by current fetishes no matter how novel or appealing they may appear. To understand the complexity of human behavior means that we must carefully evaluate all avenues of approach to the problem; while we can welcome fresh viewpoints, we

must not be too hasty in discarding older ones. If a particular method of investigation is relevant to some of the issues, it is useful and should be retained, yet if it seeks to prevent further explorations by demanding strict obedience to its mandates it ceases to be a satisfactory scientific instrument. An inquiring mind is an open mind, and open-mindedness is the spice of challenge in the pursuit of knowledge. Perhaps the main stock in trade of the psychologist is tolerance and open-mindedness in his search for truth. Perhaps, too, psychology is mature enough now to supply the main answers; it may be that it is about ready to decide that it will stop aping the other sciences and will come forward with a new experimental design of its own, more suitable for unlocking the doors that are still closed. When that day arrives, mankind will pass another milestone.

PROJECT FOR RESEARCH AND DISCUSSION

WHAT AM I?

A Personal Evaluation

Write out the answers to each of the following questions. Answer them as completely and as truthfully as you can. In no way will your answers affect your class standing. Your instructor will hold them in strict confidence; you may wish to talk over your answers with him at a time of mutual convenience. If he should desire to discuss some of them in class, anonymously, of course, enter freely into the discussion, considering it an experience in group therapy.

1. *Personal history*

- a. Name and home address
- b. Age and marital status
- c. Religion
- d. Major field of present study
- e. Vocational goals

2. *Constitutional pattern*

- a. Describe your present level of health and strength
- b. List previous illnesses or physical handicaps
- c. What is your current height and weight?
- d. When was your last physical examination? What were the main conclusions?
- e. How would you rate yourself as to appearance?
- f. How would you rate your intelligence?

- g. What are your best abilities?
- h. Do you eat and sleep well?
- i. What do you dream about?
- j. How well can you stand ordinary frustration?

3. *Family background*

- a. Are your parents living? If so, what are their occupations?
- b. List any brothers and sisters and their ages
- c. What language is spoken at home?
- d. How do you get along with the members of your family?
- e. Have you reason to believe that your family were disappointed in you in any way?
- f. In what ways have your brothers or sisters influenced you?
- g. During childhood and adolescence did your parents allow you to have your own way?
- h. Were your parents consistent in their ways of handling you?
- i. Did your family's attitude toward religion and church affiliation affect your present attitude toward religion?
- j. Do you feel that you were basically loved and wanted by your parents?
- k. In what ways have you copied the behavior of your family?

4. *Educational and work background*

- a. Did you like elementary and high school?
- b. Did you receive any honors?
- c. What subjects did you like best? Least?
- d. What extracurricular activities did you enter? Were you successful in them?
- e. Have you ever worked on a job? Where and what?
- f. Did you like the work? If not, why not?
- g. If you were in the armed forces, what were your feelings about your experience there?
- h. Do you have to work now to support yourself?
- i. What are your present hobbies?

5. *Attitudes*

- a. What strong attitudes do you now hold toward
 - 1) other races
 - 2) other religions
 - 3) political parties
 - 4) wars
 - 5) fraternities or sororities
 - 6) anything else that seems important to you

6. *Present needs*

- a. What is your greatest single need?
- b. What do you admire most in others?
- c. Have you many friends?
- d. Would you say you were selfish?
- e. Would you say you were reasonably mature?
- f. Would you consider yourself as aggressive?
- g. How well do you get on with members of the opposite sex?
- h. Do you go steady? Would you like to?
- i. Do you have someone in whom you can really confide?
- j. Do you get nervous when you speak before a group?
- k. Do you often feel blue?
- l. Are you very much afraid of something? What?
- m. Is your self-respect based on your sense of achievement?
- n. Do you like most people?
- o. What do you like to do the most?
- p. What would you change in yourself if you could?

7. *Acting philosophy of life*

In one paragraph write your philosophy of life. What *program* are you now working on to correct any deficiencies you have?

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